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STRATEGY FOR THE SUCCESSFUL IMPLEMENTATION OF U.S. SOUTHERN COMMAND'S ENVIRONMENTAL SECURITY SUPPLEMENT TO USCINCSO THEATER ENGAGEMENT PLAN

by

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Preface

The world has undergone many changes over the past decade. Most importantly from a military perspective the Cold War is over, thereby reducing the risk of global nuclear annihilation. Other risks have taken the place of a nuclear exchange, however, including significant damage to the world from pollution and natural resource exploitation.

This paper addresses the military role in a concept called “environmental security.” The hypothesis is, if damage to the global or regional environment can cause conflict, affect quality of life, economic growth, national interests and state security of the United States, the military should play a part. The results of the research are valuable to unified combatant commands and senior military and civilian leaders involved in national security.

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Abstract

Population growth, globalization and conflict contribute to environmental degradation and resource scarcity. In turn, scarcity and degradation may lead to conflict, negatively affect quality of life and economic conditions, degrade environmental security and destabilize state security. To address this problem, the United States has economic, political, and military instruments of power (IOP) at their disposal to combat the environmental damage or its impact, thereby improving environmental security. The difficulty is in determining the level and urgency of the threat, and which combination of IOP is appropriate to apply to that threat.

Of particular importance to this research is the military instrument of power, specifically United States Southern Command's (USSOUTHCOM) role in United States/Latin American environmental security. In this paper, I will argue that the best strategy is to engage in traditionally military functions. Specific actions should include: (1) creating an environment of peace and stability, (2) assisting in natural disaster recovery, (3) incorporating environmental conditions into intelligence summaries, (4) using military specific assets, (5) leading by example, and (6) assembling and training a team to execute the strategy.

I chose to employ two methodologies in conducting this research. First, I completed a descriptive survey comprised of a review of pertinent literature. Second, I conducted a Delphi Survey of experts in the fields of environmental security and/or Latin America.

My analysis of the combination of these methodologies yielded the results—a strategy for USSOUTHCOM environmental security.

Chapter 1

Introduction

> *Wherever the standard of freedom and independence has been or shall be unfurled, there will [America's] heart, her benedictions, and her prayers be. But she goes not abroad in search of monsters to destroy. She is the well-wisher to the freedom and independence of all. She is the champion and vindicator of her own. She will recommend the general cause by the countenance of her voice, and by the benignant sympathy of her example.*
>
> —John Quincy Adams

World Changes

The world has undergone tremendous change in the past 10 years, organizationally, financially, and from a national security perspective. The Cold War between the United States (U.S.) and the Soviet Union is over, changing the entire organizational structure of the world. No longer are countries divided into first world (developed), second world (Soviet Union and communist), and third world (developing) states. Now, the division is between the developed Global North (GN), which includes the U.S.; and the developing Global South (GS), which includes Latin America.

The relationships between the countries have changed as well and, hence, the purpose for the relationships and the associated financial investment. During the Cold War, the U.S. and Soviet Union invested resources into third world countries to ensure political affinity and a numerical and military advantage in the event of global

confrontation. Now, funds are invested to foster state development, trade, and economic relationships.

The changes are not just organizational and financial, though. Countries face new dangers and security risks to replace the Cold War threat of a nuclear exchange between two superpowers**.** The dangers include ethnic, religious, and civil conflict, population growth, globalization, and environmental degradation/resource scarcity. This diverse collection of risks has clouded traditional national security strategies and foreign policies, causing a great amount of discussion about security and, of particular interest for this paper, environmental security. Unlike most 20th century threats, environmental threats have no bombers, missiles, ships or foreign troops attacking American sovereignty to defend against. Rather, the culprit is broad and has many masters and origins. Additionally, with the proliferation of international corporations, actions taken against an organization in a foreign country may, circuitously, degrade the viability of a U.S. company. Yet a risk to the U.S. and its people exists and is potentially significant. Global warming, resource scarcity, ozone layer depletion, air and water pollution crossing our borders … all these problems, and more, affect the health and future of the U.S. Additionally, conflicts may arise between countries over environmental issues like fishing and water rights or, environmental degradation may cause the failure or weakening of a state, thereby impacting the U.S., economically, politically, and militarily.

New dangers, strategies and policies also brought changing roles for the economic, political and military instruments of power (IOP). The military's monopoly on national security has eroded, replaced with a coordinated, multinational effort that includes all

three IOP to achieve a global security and protect the global commons—the shared world environment.

As far as leadership is concerned in this new world, the U.S. clearly stands as the hegemon—the only superpower—economically, politically, and militarily. No other country has the might to stand as the international leader and choose its own destiny. With this power, the U.S. has the capability to guide the world through newfound dangers and security risks. Closer to home, the U.S. also has a responsibility to protect its citizens and ensure the future of the state. So, when faced with a danger or a threat such as environmental degradation/resource scarcity, the U.S. must respond by identifying the source, assessing the risk, developing a strategy, and executing that strategy using an appropriate combination of economic, political, and military power to secure the future of the nation. But the difficulty comes when the connection between a particular action (conflict, environmental degradation, etc.,) and the security and viability of the U.S. is not clear. How should those situations be addressed in national security strategies and foreign policies, and what role does the military play in those "new security" situations?

Overview

This paper is organized in five parts. First, I will describe how population growth, globalization and conflict contribute to environmental degradation/resource scarcity. "Resource scarcity" is not always included in discussions of environmental problems. Yet, it is just as significant as other issues like pollution, global warming, and hazardous waste disposal. In defining this concept, Thomas Homer-Dixon says, "Analysts often usefully characterize environmental problems as resource scarcities. Resources can be roughly divided into two groups: non-renewable, like oil and iron ore, and renewables,

like fresh water, forests, fertile soils, and the earth's ozone layer. The latter category includes renewable 'goods' such as fisheries and timber, and renewable 'services' such as regional hydrological cycles and a benign climate."[1]

Second, I will show how the degradation and scarcity affect environmental security, potentially leading to conflict and/or negatively affect quality of life (QOL) and economic conditions, and possibly impacting state security. Third, I will discuss how the United States and Latin America use the economic, political, and military IOP to improve environmental security. Of particular importance to this research is the military IOP, specifically USSOUTHCOM's role in U.S./Latin American environmental security. Fourth, I will cover the obstacles impeding the use of the IOPs. Fifth, I will recommend a strategy, specifically for USSOUTHCOM to use, to overcome the aforementioned obstacles.

The relationship between all these concepts is shown in Figure 1, Environmental Security Diagram. This diagram is a roadmap through my paper. As I introduce each chapter, I will highlight the portions of the diagram to be discussed in that chapter.

Degrades

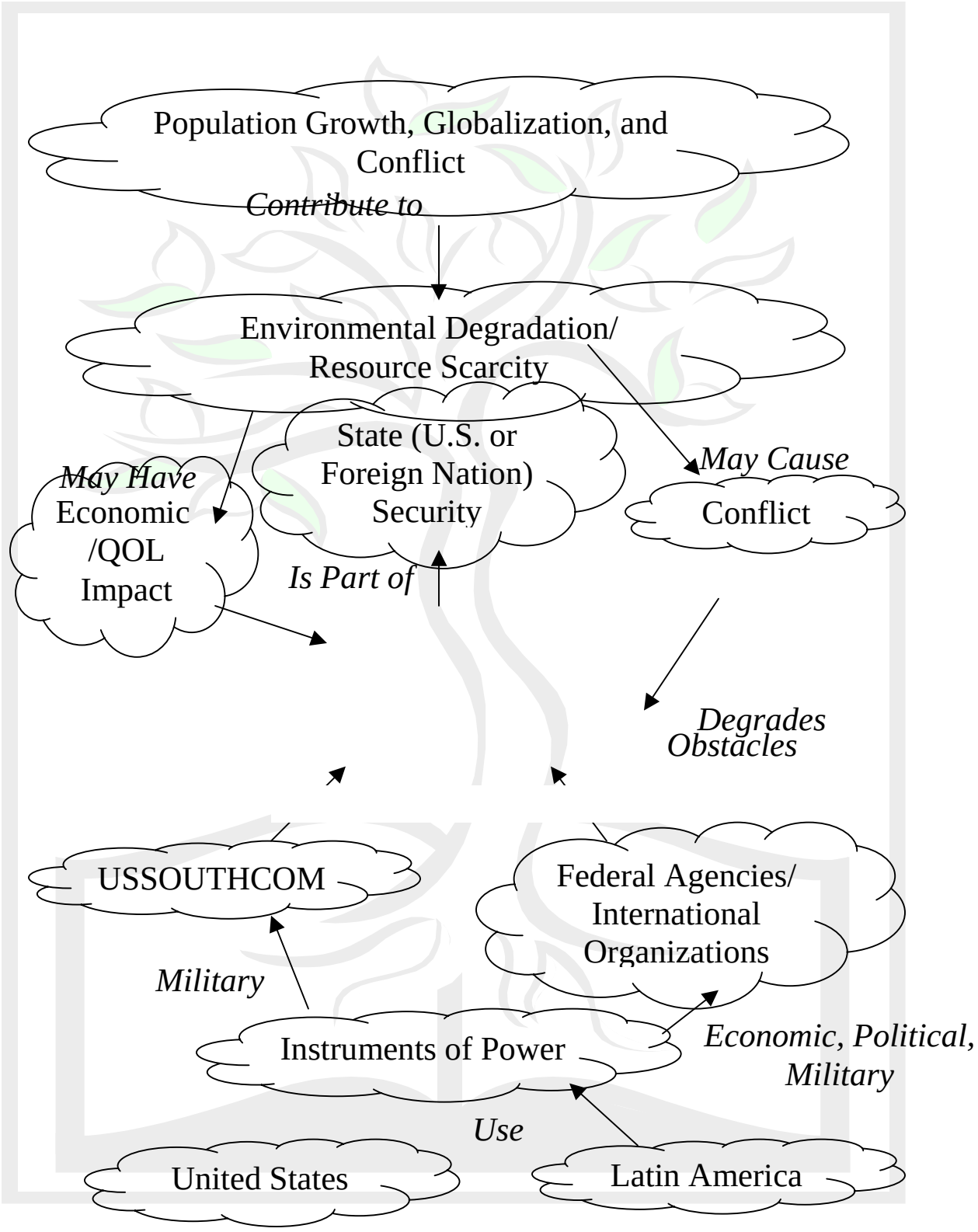

Figure 1. Environmental Security Diagram

Environmental Security

While many definitions of environmental security exist, I could find no universally-accepted definition. Therefore, for the purposes of this paper, I will define U.S. environmental security as a concept which specifically addresses threats to the viability and future success of the U.S., its citizens, and/or strategic interests from two factors: (1) threats from environmental issues such as conflict, pollution, population growth, globalization, natural disasters, and resource use/scarcity that directly or indirectly impact the living conditions, economic well-being, and quality of life of U.S. citizens and (2) environmental threats as defined above that result in conflict within or between states whereby the conflict directly or indirectly negatively affects U.S. national security interests.

Two instruments of power—economic and political—are already involved in environmental issues. U.S. Agency for International Development (USAID), the World Bank, the World Trade Organization, and other governmental and non-governmental organizations provide loans and grants to GS countries in an effort to reduce damage to the environment and promote sustainable development. Additionally, trade agreements such as the North American Free Trade Agreement are more frequently becoming vehicles to establish and enforce environmental standards, and international organizations exist to meet and address ways to solve environmental degradation. The U.S. supports some of these organizations politically and financially, but is that enough to secure the future of the U.S. from environmental threats?

The first part of the problem is defining an environmental threat. When is environmental degradation and resource scarcity a threat, with economic or quality of life impact, or the potential to lead to conflict? The second part of the problem is in defining,

scoping and forecasting a timetable for the environmental threat. For this paper, the connection must extend even further--the effect must reach from the security of a foreign nation to a *direct impact* on the U.S., its citizens, or its national interests; or the damage to the environment must affect the "global commons," and, thereby, impact the U.S. or its national interests, before the issue can be termed an environmental security or national security threat. Even then, it is not clear that the military should be chosen as the appropriate instrument of power to address the threat.

Since the environmental security definition stated above expands the traditional meaning of "national security threat," some ambiguity exists in the use of the military instrument of power in defending the U.S. from this threat. Not all environmental issues are environmental security issues, and not all environmental security issues require a military response. But, if a connection exists between environmental issues and national security, should the military also be involved? What is the military's role? In this paper, I will address that role, specifically USSOUTHCOM's role as it applies to Latin America.

One must first begin with the 1999 U.S. National Security Strategy (NSS), the guiding document for U.S. interests, and her strategy on environmental security. Within this document, the U.S. categorizes interests as *vital*, *important*, and *humanitarian and other*. First, vital interests are of broad, overriding importance to the survival, safety and vitality of the U.S. Second, important national interests are those that do not affect national survival, but they do affect national well-being and the character of the world. Third, humanitarian and other interests are circumstances under which the U.S. may act because values demand it.[2]

Environmental security falls into two of the three interest categories and threats to these interests, by definition, constitute national security issues. Protecting the global environment from severe harm and crises with a potential to generate substantial and highly destabilizing refugee flows comes under important national interests. Additionally, promoting sustainable development and environmental protection is included in humanitarian and other interests.[3]

The U.S. plan for addressing environmental and other interests is a strategy of engagement. "Our strategy has three core objectives: enhancing American security; bolstering our economic prosperity; and promoting democracy and human rights abroad, which we strongly believe will, in turn, advance the first two goals."[4] Following that strategy, federal departments, such as the State Department, Department of Energy, and Department of Defense (DoD), develop plans to protect U.S. interests. Within the DoD, unified combatant commands such as USSOUTHCOM must plan, program, budget for and execute a theater-level strategy to mitigate the threats in their area of responsibility (AOR) which, for USSOUTHCOM, encompasses Latin America (the Caribbean, Central and South America) and the surrounding waters, excluding Mexico.

Research Questions

As they endeavor to execute this strategy, the questions facing senior USSOUTHCOM leaders are, "What is the role, mission and objectives of the U.S. military in executing the environmental security portion of the U.S. National Security Strategy?" Additionally, given current world conditions and global military commitments, and the capabilities afforded the U.S. military by DoD budgets, "What are the critical challenges or obstacles facing the military in executing their role, mission and

objectives?" Lastly, "What are the possible strategies available to overcome the challenges?" These questions constitute the framework for this paper.

The Commander-in-Chief, U.S. Southern Command (USCINCSO) Theater Engagement Plan addresses the Command's theater responsibilities. Within that plan, USSOUTHCOM drafted an Environmental Security Supplement to carry out the Command's environmental security responsibilities. Given the role of USSOUTHCOM in Latin America, the management question this paper will answer is, "How can we facilitate the success of the Environmental Security Supplement to USCINCSO Theater Engagement Plan?" The research questions that follow are, "What are the critical obstacles to successful implementation of the Supplement?" and "What strategy should be used to overcome those obstacles?" These questions narrowed the paper's focus to USSOUTHCOM and the Latin American operational theater.

Methodology

The methodologies used in this research included a descriptive study and a Delphi Survey and are addressed in greater detail in Appendix A. Since the military's role in environmental security is somewhat new, and USSOUTHCOM's Environmental Security Supplement even newer, little information is available discussing procedures and strategies for its success. However, a great deal of information is available on current discussions of security, environmental security, and U.S./Latin American political relationships. In the descriptive study, I will summarize those discussions and relationships as well as the existing information on the military and environmental security.

To increase the rigor of the research, a Delphi Survey was given to experts with particular expertise in environmental and/or Latin American affairs. The results of this survey will shed light on implementing environmental security policies and on the attitudes and characteristics of the Latin American people regarding U.S. involvement in Western Hemispheric affairs.

From both methodologies, forecasts can be made regarding which types of actions would generate the greatest success and, from those forecasts, a strategy can be developed for the execution of USSOUTHCOM's environmental security mission. Additionally, from both the descriptive study and the Delphi survey, I will propose means of measuring progress so that a return on investment can be determined.

Conclusion

Chapter 1 introduced new world conditions and national security threats, including environmental degradation/resource scarcity. This chapter also provided an overview of my research, a definition of environmental security, and introduced the methodology and research questions: "What are the critical obstacles to successful implementation of the Supplement?" and "What strategy should be used to overcome those obstacles?" In my research, I will answer these questions. In the next chapter, I will explore more deeply the top portion of Figure 1, specifically, how world conditions impact the environment.

Notes

1 Thomas Homer-Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases, Part 1," *Peace and Conflict Studies Program, University of Toronto, International Security,* Vol 19, No. I, 8; 14 December 2000, on-line, Internet, available from http://www.library.utoronto.ca/pcs/evidence/evid1.htm.

2 The White House, *A National Security Strategy for a New Century,* December 1999, 2.

Notes

3 Ibid., 1-2.
4 Ibid., 3.

Chapter 2

World Conditions and the Environment

The purpose of all war is peace.

—Saint Augustine

Introduction

The previous chapter introduced the research topic and described the methodology used. Chapter 2 will describe the conditions existing in the world today that contribute to environmental degradation/resource scarcity as shown in the top portion of Figure 2, Environmental Security Diagram, and cover some of the more severe cases of degradation/scarcity.

This chapter is important to set the stage for the remaining chapters. However, I do not presume to discuss every possible condition and environmental problem in the world today. Instead, I selected problems that are particularly pertinent to the discussion of USSOUTHCOM's role in executing an environmental security plan for Latin America. Still, this proved to be an enormous effort. In that light, I ask the reader to indulge me on the relatively superficial nature with which I treat these topics.

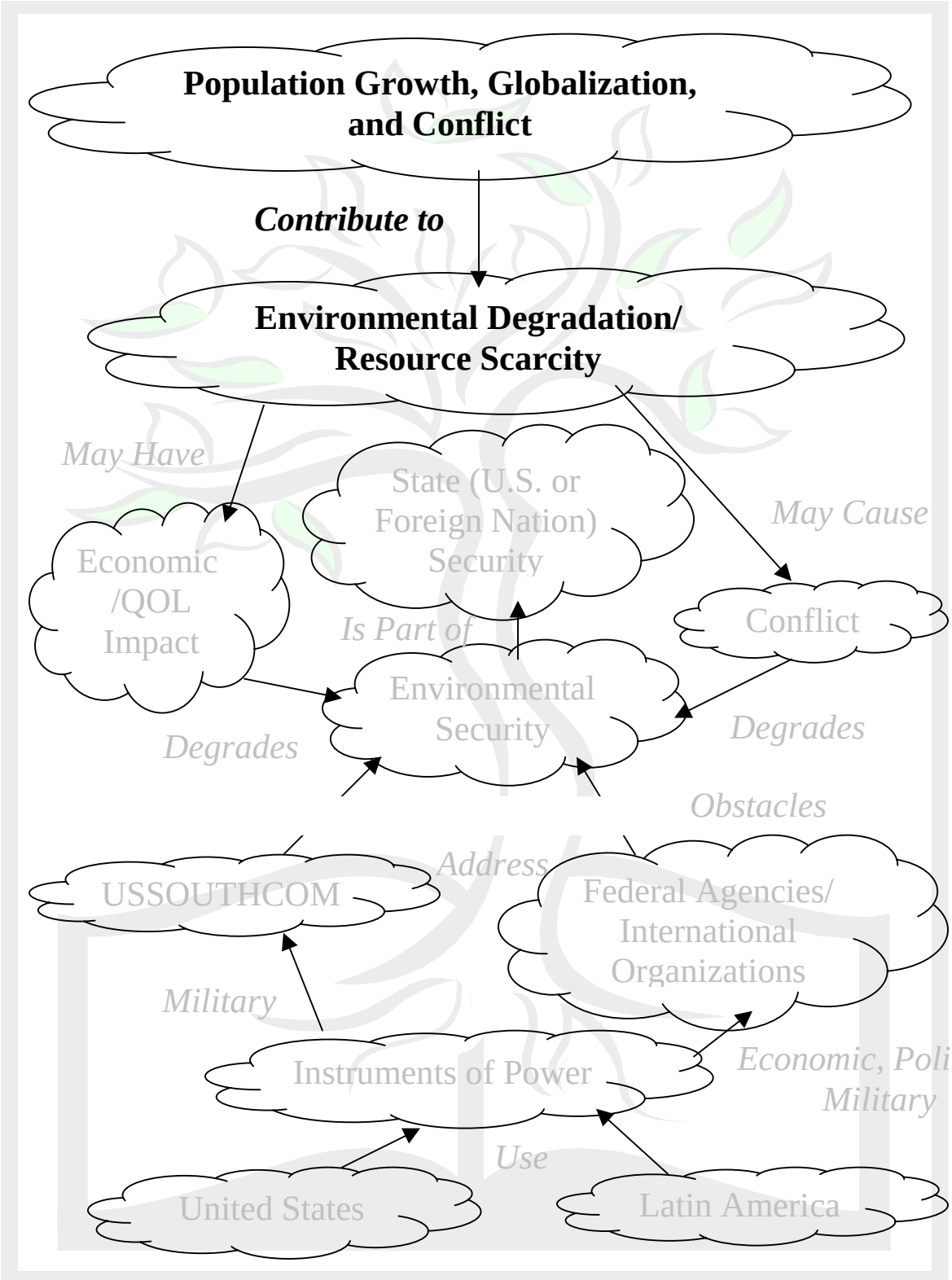

Figure 2. Environmental Security Diagram

Organizational Structure

Organizational structure provides the framework within which the states of the world must operate. When the structure changes, frequently so do the relationships between, and the strategic interests of, the states. This is what has occurred in the 1990s.

The world has undergone tremendous change in the past 10 years. The Cold War between the U.S. and the Soviet Union is over, changing the entire organizational structure of the world. No longer are countries divided into first world (developed), second world (Soviet Union and communist), and third world (developing) states. Now, the division is between the developed Global North (GN), which includes the U.S.; and the developing Global South (GS), which includes Latin America; distinguished by politics, technology, wealth and demography.[1] Within this framework, the GS includes most of the former colonies, which have a unique and sometimes adversarial relationship with the GN. This relationship limits the avenues available to execute a successful U.S. environmental security strategy due to the reactions of GS countries to the engagement activities of powerful GN countries like the U.S.

Government

The changes are not just organizational. Governments have also changed, although the change has been more gradual, occurring in the past century instead of decade. Within this period, the Organization of American States (OAS) has strongly encouraged democracy in the Western Hemisphere, and had reasonable success, with every Latin American country except Cuba professing a government at least partially consisting of elected officials.[2]

From a world perspective, this preponderance of democracy paints a bright future. While there are no guarantees, it portends fewer state-to-state conflicts because democracies tend not to wage war on other democracies.[3] Additionally, states with free governments and free people are more likely to accept free trade, which in turn generates higher levels of prosperity and pressure by business interests to preserve the international peace on which prosperity and profits depend. Inside the countries themselves, the perspective may be different, however. A democratic form of government does not necessarily guarantee economic equality, better conditions, or even fewer occurrences of civil rights violations.[4]

Additionally, there is concern among experts that this democratic trend does not have a certain future, even in the Western Hemisphere. Democracy in Colombia, Ecuador, Peru and Venezuela was discussed during a conference held by the Latin American Program of the Woodrow Wilson Center in 2000.

> The conference was motivated by the growing concern that throughout the region, the continued consolidation of democratic rule could not be taken for granted, and that the accumulation of political, economic, and social crises could precipitate a return of authoritarian forms of government.
>
> Most participants concurred that there is a deep crisis of governance in the Andean region. However, the panelists also observed that these crises vary in intensity from country to country and are rooted in distinct political and social histories. Several panelists mentioned that the effects of economic restructuring programs, antiquated political structures, and the growth of drug trafficking—as well as ill-advised strategies to combat it—have contributed to deepening the crisis of democracy.[5]

This concern is particularly defined in the Amazon Basin, the largest contiguous tropical rainforest in the world, where governments appear to be unable to control events ranging from farming to drug trafficking. "The regional trafficking and production of narcotics, illegal logging, and the clearing of the forest for ranching or agricultural use

are on the rise. Even after several decades of preoccupation over regional security threats, it is clear that the government [of Brazil] has very limited control over events in Amazônia. Brazil is not alone in this regard. In Columbia the jungle has proven a useful shield to the FARC [Revolutionary Armed Forces of Columbia] rebels, and Venezuela, Peru, and Bolivia also suffer from the production or smuggling of drugs or other contraband, and the effects of illegal mining or logging."[6]

Geography

The geography of interest for this paper is the USSOUTHCOM area of responsibility (AOR), which includes all of Central America (excluding Mexico), South America, the Caribbean, and the waters surrounding these countries. For simplicity during the remainder of the paper, I will call this area Latin America.

Latin America is part of the Western Hemisphere, an enormous, beautiful, unique environmental area with "an extraordinary biodiversity: more than 50% of the world's protected areas and 70% of the biosphere reserves are in the Americas."[7] Within Latin America itself, "with only 16 percent of the planet's land area and occupied by a mere 8 percent of its population – one can find 27 percent of all mammals, 34 percent of all flowering plants, 37 percent of all reptiles, 43 percent of all birds, and 47 percent of all amphibians, not to mention 29 percent of global freshwater resources."[8]

Encompassing 45% of South America and 5% of the earth's land, the Amazon Basin provides much of the world's oxygen.[9] This 7.2 million square kilometer area is particularly sensitive and resource-rich.

> It holds one third of the world's tropical forests and 10% of its biota. More than 16% of the world's freshwater pours through the Amazon River, with an average flow in excess of 175,000 m^3/sec. This

> corresponds to a volume of water five times that of the Congo River and twelve times more than the Mississippi. The Amazon and its tributaries form a network of navigable waterways some 25,000 km long. The Amazonian countries have set aside 30% of the area of the region, some 220 million hectares, as national parks, protected areas, and special reserves.
>
> The Amazon Basin also has an important natural-resource base to support economic development. It contains the world's largest known bauxite reserves and is a major source of natural gas, thermal energy sources, iron ore, manganese, gold, and other minerals, such as niobium and titanium, that have new technological applications. These and other commodities produced in the region are in increasing export demand. The proper management of the Amazon natural resources, within a framework of sustainable development, is vital for the countries of the Basin and for the entire world. With more than 8,000 km of contiguous borders, portions of 8 of the 12 countries of South America, and a population of 30 million people, it represents a key region in which to achieve multinational objectives of sustainable development.[10]

New Dangers

Governments face new dangers and security risks to replace the threat of nuclear war between two superpowers. Ethnic, religious, and civil conflict, terrorism and war are devastating to state security. In addition, population growth, globalization, and environmental conditions are underlying factors with the potential to erode confidence in the state and lead to, or foster, conflict.

These new dangers are changing the definition of national security compared to the Cold War.

> The end of the cold war and the revival (or unmasking) of ethnic and economic conflict around the globe have served to highlight underlying social, economic, and political problems that have been festering for decades or longer. Old definitions of security are being revised. One need only look at successive iterations of the U.S. National Security Strategy during the Reagan and Bush administrations to see the shift in emphasis from the military aspects of the cold war with the Soviet Union to U.S. economic security (e.g., trade, access to raw materials), protection of U.S. citizens, (e.g., countering drug trafficking), and a 'new world order' of

> peaceful change in world political institutions and practice. Intertwined in these complex and changing threads of security concern is greater recognition of socioeconomic and environmental concerns….
>
> Part of the problem is that national security has traditionally been defined in military terms—in the ability to deter or repel outside aggression. But just as externally inspired subversion was considered a serious threat from the 1930s through the early 1980s, environmental degradation is becoming (along with extreme nationalism, religious radicalism, and economic conflict) a prime threat for the 21st century. This increasingly visible threat includes pollutants flowing across frontiers through air or water, major floods unleashed by denuded watersheds far from national borders, climate changes, deterioration of the agricultural base, deforestation and desertification, and the ensuing large-scale impoverishment and movement of populations.[11]

It is important to understand that conflict and environmental degradation/resource scarcity can contribute to each other. According to Jeff Stark, Frank McNeil, and Anthony T. Bryan of The Dante B. Fascell North-South Center, "Environmental security is a two-way street. While environmental stresses may engender conflict, existing conflictive relations may contribute to environmental stresses."[12] Conflict can burn or defoliate forests, poison waters and air, and destroy natural infrastructure. Conversely, resource scarcity and pollution can lead to immigration, rebellion, state insecurity and war. In a RAND Corporation report, James A. Winnefeld and Mary E. Morris quoted Peter Gleick's four-part summary of the relationship between resources, environmental threats, and conflict as follows:

> Resources as strategic goals. The drive for access to (or control of) scarce resources has been the classic formulation to describe the essential nature of power relationships among nation-states.
>
> Attacks on resources. Power plants, energy distribution centers, oil fields, and desalinization facilities can be—and have been—the target of attacks during conflict. Nuclear power plants and processing facilities are potential future targets. Dams have been regularly attacked in war. These attacks are intended to deny the enemy valuable current and future capabilities.

> Resources as military tools. Even as economic embargos are used to achieve military and political ends, so direct manipulation of resources and environmental 'services' can be used as political threats or for military advantage. Water flows can be blocked or diverted. Forests can be destroyed. Water tables can be fouled. Prevailing winds can convey pollutants.
>
> Disruption to environmental services. Denying others the benefits of clear air and water or the waste-absorbing capabilities of natural ecosystems has been described as abuse of the 'global commons.' Examples are overuse of shared fresh-water resources, creation of acid precipitation, degradation of the atmosphere, and 'export' of ecological problems.[13]

Unfortunately, the Global South appears to be a breeding ground for conflict and environmental issues. "Serious political, ecological, and environmental problems seem to be concentrated in the developing world, including explosive ethnic conflict and violence, political instability, population pressures, and environmental and health problems with potentially serious consequences for the rest of the world."[14]

Conflict

Despite the best efforts of the developed countries and the recent decline in state-to-state conflict between these countries, war and conflict continue to occur, devastating lives, economies, state structure and the environment. At least 125 million people have died in wars since 1900, and, while the causes of the conflict and the scope appears to have changed over the past 100 years, the concept of killing remains the same.[15] The difference throughout the century is the type of wars fought, the goals, and the theater of battle. "Armed interstate conflicts that cross borders and result in one thousand or more battle fatalities have been far less frequent between 1945 and 1998 than all types of armed conflicts in general….Most armed conflicts have been civil wars *within* states instead of wars *between* two recognized countries." (italics in original)[16] These conflicts

are now concentrated almost exclusively in the Global South less developed countries, where poverty is more prevalent and governments are less stable.[17]

Ethnic conflicts, seen today in Eastern Europe and the former Soviet Union, are arising because the Cold War stalemate no longer exists to hold them in check, and states are powerless to control the old rivalries and hate. "The end of the cold war has seen the reawakening of regional and intranational conflicts in many parts of the developing world and former Soviet bloc, conflicts long restricted or subsumed by the dynamics of the cold war. This resurgence of hypernationalism and ethnonationalism has been accompanied by a potential 'clash of civilizations' between other cultures and 'the West.'"[18]

These internal wars are long, bloody, very difficult to negotiate, complicated by poverty and relative deprivation, and often involve slaughter of innocent civilians. The conflicts frequently arise within indigenous peoples who share a common heritage and value their cultural ideals more than state loyalty. This value system, coupled with "the inherent ethnocentrism underlying ethnonationalism—the belief that one's nationality is special and superior and that others are secondary and inferior—breeds ethnic conflict."[19] To complicate matters further, individualization by ethnic and religious factions, combined with the pressure to integrate by the global economic and technological forces, can rip apart national solidarity.[20]

The causes of religious conflict are similar to those of ethnic conflict—namely, intolerance. "A system of belief provides religious followers with their main source of identity, and … this identification with and devotion to their religion springs from the natural human need to find a set of values with which to evaluate the meaning of life and the consequences of choices. Unfortunately, this need sometimes leads believers of a

religious creed to perceive the values of their own religion as superior to those of others, which often leads to intolerance."[21]

Ethnic and religious intolerance, along with economic circumstances, can lead to terrorism. "In the industrialized world, terrorism often occurs where discrepancies in income are severe and where minority groups feel deprived of the political freedoms and privileges enjoyed by the majority. In the urbanized areas of the industrialized world, guerrilla warfare—normally associated with rural uprisings—is not a viable route to self-assertion, but terrorist tactics are."[22] To complicate the situation further for states and inter-governmental organizations, terrorists are sometimes funded by international organized crime (IOC) cartels to facilitate narcotics trade profits.[23] State governments with limited resources find it difficult to fight terrorists and direct their efforts to the IOC cartels, both of which take time and money away from state investments in the economy, civil programs and infrastructure.

Wars and conflicts cause concern in the U.S., tugging not just at our moral conscience and purse strings, but potentially challenging our future as well. Wars tend to be immediate crises, drawing attention and resources away from long-term strategic thinking and development, which can impact future viability. Additionally, wars carry the possibility of creating a regional hegemon to challenge the U.S.' 20th and 21st century reign. Historically every 100 years or so, wars have been the vehicle for global destabilization and the rise of a new great power.[24]

Lastly, and most importantly for this paper, conflict takes resources away from, and damages, the environment. Killing and destruction, war and the preparation for war is expensive, particularly for the cash-starved Global South. The amount invested is

enormous—77% of the $23.2 billion worth of worldwide arms deliveries in 1998—were to Global South countries.[25] Additionally, valuable natural resources such as oil, natural gas, water, minerals and ores are used to generate a war machine, the purpose of which is to deny access to or destroy enemy resources.

> Increasing ecological vulnerability and disparities in resource availability and wealth, combined with growing economic and political tensions and instabilities, can lead to situations where the environment and the ecological balance of the earth itself become either a target or a tool of aggression. The 1991 Gulf War, with Iraq's deliberate and calculated acts of environmental terrorism, is a clear reflection of these realities. Massive oil spills, bombing attacks on nuclear facilities and energy plants, threats to restrict or damage water access, and burning oil fields caused pollution unknown in history.
>
> The Gulf War was among the most ecologically destructive conflicts to date….Although Kuwait was liberated, it was turned into a disaster zone: hundreds of oil fires polluted the atmosphere, oil deliberately spilled on the ground and into the Gulf tainted aquifers and poisoned marine life, attacks on refineries, petrochemical plants, and chemical and nuclear facilities released quantities of toxic material, damage to public utilities and roads threatened epidemics and famine, and massive movements of troops and heavy equipment imperiled an already fragile desert ecology.[26]

Population Growth

There are 6 billion people in the world as of 12 October 1999 and, at current growth levels, that figure could grow by another 2.7 billion by 2030. This ever-increasing population is at the root of most adverse environmental trends.[27]

According to Winnefeld and Morris, an important correlation exists. Reducing population growth stimulates the economy and helps reduce poverty and income inequality. Conversely, unrestrained population growth slows or reverses country development and results in environmental degradation.[28]

Additionally, the trend worldwide is toward urban migration, with 78 percent of people forecasted to be living in cities by 2010. Also, while worldwide populations are

growing, geographically the growth rates are very uneven, with GS populations growing much quicker than in the wealthy GN countries. It is expected that by 2045-2050 all the net population growth in the world will come from the less developed regions.[29] To accommodate the larger population and the migration, food production will have to double and energy use and industrial production will rise by 200-400 percent.

Latin America is a growing region as well. Although five Latin American countries show negative population growth rates, including Trinidad and Tobago with a population of over one million people, most negative growth is occurring in the smaller countries like Dominica, Saint Kitts and Nevis. Positive population growth rates are occurring in the remaining countries, most of them with large populations including Argentina, Brazil, Columbia, Peru, Venezuela, and Cuba as shown in Table 1, Latin American Population Growth.

Table 1. Latin American Population Growth

Country	Population (2000 est)	Population Growth Rate (2000 est)
Antigua and Barbuda	66,422	0.73%
Argentina	36,955,182	1.16%
The Bahamas	294,982	1.01%
Barbados	274,540	0.55%
Belize	249,183	2.75%
Bolivia	8,152,620	1.83%
Brazil	172,860,370	0.94%
Chile	15,153,797	1.17%
Columbia	39,685,655	1.68%
Costa Rica	3,710,558	1.69%
Cuba	11,141,997	0.39%
Dominica	71,540	-1.14%
Dominican Republic	8,442,533	1.64%
Ecuador	12,920,092	2.04%
El Salvador	6,122,515	1.87%
Grenada	89,018	-0.36%
Guatemala	12,639,939	2.63%
Guyana	697,286	-0.1%
Haiti	6,867,995	1.39%
Honduras	6,249,598	2.52%
Jamaica	2,652,689	0.46%
Nicaragua	4,812,569	2.2%
Panama	2,808,268	1.34%
Paraguay	5,585,828	2.64%
Peru	27,012,899	1.75%
Saint Kitts and Nevis	38,819	-0.22%
Saint Lucia	156,260	1.21%
Saint Vincent and the Grenadines	115,461	0.43%
Suriname	431,303	0.65%
Trinidad and Tobago	1,175,523	-0.43%
Uruguay	3,334,074	0.77%
Venezuela	23,542,649	1.6%

Source: CIA Factbook 2000

Population growth also has a direct impact on military power. "The shrinking of the world's more economically prosperous states, as low fertility rates and aging populations

in the Global North make it difficult to maintain large armies, may reduce their military power relative to the Global South whose abundant youth can provide ample supplies of soldiers to fight the wars of the twenty-first century."[30] Despite the U.S. significant technological military advantage, population growth and its relationship with the potential size of armed forces needs to be factored into future visions and state-to-state relationships.

Interestingly, the two biggest factors affecting population growth are social attitudes and education levels, particularly among women. Educating and empowering women directly reduces the rate of population growth.[31] However, even when growth rates begin dropping, the population has inertia for two or three generations. Hence, this is not a problem that can be solved quickly.

Globalization

Another factor complicating the jobs of national leaders is increasing world globalization, defined by the International Monetary Fund as "the increasingly close international integration of markets both for goods and services, and for capital."[32]

This globalization concerns leaders because it causes a disappearance of national borders due to the inability of the states to control trade, finance, economic activity, and communication within their land. For example, "each day, well over a trillion dollars flows around the world, exceeding the volume of trade by 60 times."[33] This volume is virtually impossible to control.

As the world globalizes, so does environmental damage and its impact. According to Lester Brown and Christopher Flavin, senior researchers at the Worldwatch Institute in 1999, "The bright promise of a new century is clouded by unprecedented threats to the

stability of the natural world. Rapid deforestation, falling water tables, and accelerating climate change could undermine economies around the world in the decades ahead."[34] The effects of environmental degradation can no longer be contained in one region. David Held, Anthony McGrew, David Glodblatt, and Jonathon Perraton, British social scientists said in 2000, "What is new today is that some of the greatest threats are global—and any effective response will have to be global too….Most forms of environmental degradation were largely local until the middle of [the twentieth] century. Since then, the globalization of environmental degradation has accelerated."[35]

Just as the effects of environmental damage have globalized, so have the effects of actions taken to reduce the damage. Economies are so intertwined that intervention in a foreign country may very well cause lost profits and jobs at home. This is not to say the intervention should not occur; only that the worldwide impact must be understood.

Environmental Conditions in Latin America

At this point, I want to discuss some of the more significant environmental damage in Latin America caused by conflict, population growth, and globalization.

Land Management, Desertification and Deforestation

If the land is not properly managed, population growth and the associated increased requirement for food, energy and industrial production, can result in desertification and deforestation. Improper land management is particularly severe in the Western Hemisphere, where, according to the World Bank, 7 of the 10 highest deforestation rates are in Latin America.[36] The impact on the ecosystem is significant.

> High population growth rates, industrialization, and urbanization increase pressure to farm forests and marginal land less suited to cultivation and

> lead to deforestation and desertification, which make an increasing portion of the earth's land mass deserts that are useless for agriculture productivity or wildlife habitats. Soil degradation has stripped more than 3 billion acres of the earth's surface from productive farming.…'Since 1950, 11 percent of the planet's vegetation (approximately [2.9 billion acres]) has suffered land degradation.' (Crump, 1998, 78)….In the Global North, reforestation has alleviated some of the danger. This is not the case in many cash-starved Global South countries, which sell timber for income and to make room for their growing populations seemingly without concern for the long-term consequences of the destruction of their forests.…Up to 12.4 million acres of forest were burned in Indonesia and Brazil alone….[37]

According to Winnefeld and Morris, "Deforestation and the subsequent unraveling of entire ecosystems is probably the most serious form of renewable resource decline. Related concerns are soil degradation—including desertification caused by overcultivation, overgrazing, erosion, salinization, and waterlogging that results from poor water management techniques. Patterns of land tenure also play a role. In most less-developed countries, a small percentage of the population is pushed onto the most damage-prone land and into the forests. With land holdings either too small to support a livelihood or too poor to support crops, many agricultural workers forsake rural areas and join the exodus to urban areas."[38]

In an American University Trade Environmental Database (TED) case study on Brazil, other problems were found to result from deforestation including global warming, lost biodiversity, and species loss.

> (a) Global Warming: Deforestation in developing countries accounts for between 7 and 31 percent of global carbon dioxide emissions which cause climate change.
>
> (b) Bio-diversity: Northern Brazil is losing natural forests with the substitution of fast-growing eucalyptus and pine trees, cattle ranching and commercial logging.
>
> (c) Species Loss: Much of Brazil's native flora, fauna and animal species are being lost with the harvesting of tropical forests.[39]

Deforestation is strongly related to a history of low social development, driven by farming and ranching, and aggravated by economic conditions and government policies. "Until the population can achieve better education, living standards, and economic opportunities, the costs of human activities on forest resources will remain high."[40] Culture and prior colonization can also be a factor, as is the case with Costa Rica. "Many would claim that the inherent cultural relationship between Protestant work ethic/capitalism and the long period of Northern colonization of the South (until the 1960s) was culturally derived. The US has often been criticized, as well as Europe, for colonizing and controlling the South."[41]

Deforestation is driven by farming and ranching. Small-scale farmers clear the land by fire but, large-scale agricultural development has an even greater impact. "Soybeans in particular are a booming regional export and are demanding the modernization of roads, ports, and waterway transport. Since most settlement in Amazônia is urban, policymakers also have to address environmental effects such as industrial and human waste, smog, and the spread of favelas into the jungle."[42]

In Costa Rica for example, deforestation has been called the single biggest environmental problem. "Around 1900, 85 % of Costa Rica was rainforest. By 1985, only 26 percent remained, most of the loss going to banana plantations."[43] This deforestation, both from banana crops and cattle ranching, has resulted in an inability to stabilize topsoil, which erodes, taking much of the land's nutrients with it. "The long-term effects of this depletion have been the overall reduction of the land's productive life. Approximately 2.2 billion metric tons of top soil have in the aggregate been eroded in this Central American nation due in no small part to the role of beef exports to the United

States. Ironically, Costa Rica today receives greater earnings from the preservation of its rain forests than it did from its exploitation and destruction."[44]

Economic conditions and shortsighted government policies aggravate deforestation. "The liquidity, or rather, debt crisis that emerged from the 1970's and 1980's has provoked many in the developing world to cattle ranching, specifically the exportation of beef. This exportation has been directed towards the developed world but in particular to the United States."[45]

The problem boils down to a commitment and resources from government to properly manage the land. For example, "Brazilian environmentalists have failed thus far in making the conservation or management of the environment a powerful issue in national politics. While awareness of the environment has grown, especially as a result of intense international pressure in the late 1980s and early 1990s, the issue has yet to show consistent salience in state and local politics, where most land use decisions are legislated and enforced."[46]

Climate Changes

Population growth, and associated energy consumption and industrial production, particularly the burning of fossil fuels, leads to global pollution, which interferes with normal climate cycles. "Carbon dioxide accounts for the bulk of the gases that contribute to the greenhouse effect, with chlorofluorocarbons (CFCs) composing much of the rest. As the amount of these gases released into the atmosphere has grown, the global temperature has risen."[47] The GN has taken steps to reduce CFC use and agreed to assist developing countries find alternatives. But, the resources have not accompanied the

agreements, so the GS continues to produce the chemicals. Illegal trade in virgin and recycled CFCs also exists in the GS.[48]

The impact of global climatic changes is worldwide, with "the potential for altering international relations, economics, behavior, and security. Predictions of greenhouse warming, for example, indicate drastic changes both globally and regionally in the conditions of life on earth. As global temperatures increase, precipitation patterns will shift, ocean currents will alter climates, sea levels will rise, shores will erode, and river deltas will be flooded."[49]

Hazardous Waste Trade

Industrial production yields hazardous waste, which is sometimes disposed of improperly. This problem is exacerbated by the rich/poor, GN/GS hazardous waste trade. Global South countries risk their environment and their citizens' health in exchange for financial gain by offering a burial ground for wastes generated in the GN but without socially acceptable disposal sites. The risk associated with this practice is immense.

> The adverse environmental consequences caused by the improper disposal of toxic wastes are diverse. Animal populations of natural ecosystems can be threatened by contact with hazardous wastes, their viability affected by changes in mortality rates, reproductive success, and behavior. Toxic wastes become biologically active through 'biouptake' when they are ingested, inhaled, or come into contact with the skin. Toxic chemicals become concentrated in the food chain when fish and other animals eat plant or animal matter, creating a narrowing pyramid of food consumption. By the time the toxic chemicals reach the predator animals on the food chain, the degree of toxicity may have increased many times over.
>
> Hazardous wastes may also affect plant communities, water use, and land use. When present in soil and water, hazardous wastes have damaging effects on plant growth and health. Land can become unusable for harvesting or cultivating food if the land itself is contaminated by hazardous wastes. Drinking water sources for entire communities can be affected by ground or surface water contamination from toxic chemicals or

> heavy metals. Hazardous wastes can also affect air quality if toxic vapors are allowed to vent from improper waste disposal techniques or failed containment.
>
> In addition to the environmental implications of hazardous waste disposal, there are also environmental risks associated with the handling of hazardous wastes. The greatest risk is in transporting them, given the possibility of accidents and chemical spills on land or in the ocean. The explosiveness and flammability of hazardous wastes also present potential problems. A recent tragic example occurred in April 1992 in Guadalajara, Mexico, when underground sewage pipes beneath the downtown area exploded, leaving 1500 people dead, because of improper chemical waste disposal.[50]

Yet, the practice continues, primarily in disadvantaged areas that do not have the knowledge or resources to prove the dangers and fight against the companies and governments involved. "Directly linking a community human health problem to a hazardous waste disposal site is problematic. A combination of factors is often at play in such public health threats. In many cases, there are no studies showing current rates of disease in relation to the rates of disease over previous decades for the same community."[51]

Cuba

Two particular regions are worth mentioning specifically—Cuba, and the Caribbean region. In Cuba, the problems range from soil degradation and water loss, to mishandling of pesticides and other environmental concerns. According to a 1999 report, soil degradation in this nation has reached the "environmental disaster" level due to agriculture and ranching, combined with a missing national soil conservation strategy. Additionally, 12 million cubic meters of fresh water are lost each month to spills and leakage in Havana alone.[52]

Dangerous pesticide usage was cited earlier in Costa Rica. Similarly, mishandling of pesticides in Cuba resulted in the deaths of residents. "The most striking event of the year was the death of 15 residents of the town of Manguito in Matanzas Provinze when they ate food contaminated with a pesticide. The negligent sale of fritters containing 'Thiodan' by a self employed operator caused the disaster that affected a total of 63 citizens….'Thiodan' is a pesticide of the organo-chloral type, with a texture and color similar to that of wheat flour, of very rapid action between ingestion and the onset of symptoms, which feature nausea, loss of muscle tone, convulsions and breathing problems. Food packing, negligence, and the most absolute lack of scruples, among others, cause these regrettable occurrences of chemical poisoning in Cuba."[53]

Other problems include an inability to properly dispose of trash; coastal ecosystems destroyed by tourism; and inadequate attention and resources for watershed management.[54]

The Caribbean

While the single major cause of environmental degradation in the Caribbean is tourism and the associated activities, a combination of factors, including military operations and hurricanes, has caused very unique environmental problems in the region.

> The dependence on resource-based economic activities, high poverty levels, increasing population growth, virtually unrestricted development, industrial activities, resource overexploitation, and tourism is exerting tremendous pressure on the natural resources of Caribbean nations. It is forecast that coastal populations in the Caribbean Region will reach 65 million by 2000. In addition, it is expected that the area (excluding the Florida Keys) will accommodate 28 million visitors per year by 2010 associated with land-based and ship-based tourism. The pressure exerted by these trends is already visible. Mining and industrial activities and excessive land use have led to high levels of sewage, pesticides, heavy metals, and solid wastes. Chronic overfishing has led to the serious depletion of nearly every commercial stock, and the condition of near-

> shore ecosystems (i.e., wetlands, mangroves, seagrass beds, and coral reefs) has been severely compromised in the recent past, prompting the designation of these key habitats as 'ecosystems-at-risk.'[55]

Conclusion

Chapter 2 covered some significant current world conditions—organizational structure, government, geography of the Western Hemisphere and Latin America in particular, and new dangers such as ethnic, religious, and civil conflict, terrorism and war. In addition, this chapter included topics such as population growth and globalization. All these problems have replaced the Cold War threats, and changed the definition of national security.

Chapter 3 will discuss how the environmental degradation/resource scarcity can foster conflict and, with or without the conflict can negatively affect state stability.

Notes

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47 Kegley and Wittkopf, *World Politics* (Boston, Mass.: Bedford/St. Martin's, 2001), 380.

48 Ibid., 387.

49 Winnefeld and Morris, *Where Environmental Concerns and Security Strategies Meet,* RAND Report MR-378-RC, (RAND, Santa Monica, Calif: RAND, 1994), 39.

50 Christine Harwell and Susan Lieberman, "Trade and the Environment: The Legacy of Hazardous Wastes," *North-South Issues (Toxic Waste and Trade),* Vol. II, No. 5, 1993, (The Dante B. Fascell North-South Center, University of Miami), 2.

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52 Eudel Eduardo Cepero Varela, *Cuba: Report on the Environment, 1999, (*Agencia Ambiental Entorno Cubano), 5.

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Chapter 3

The Environment Affects U.S. National Security

> *We're a nation with global responsibilities. We're not somewhere else in the world protecting someone else's interests; we're there protecting our own.*
>
> President Ronald Reagan

Introduction

In the previous chapter, I covered pertinent world conditions and argued that conflict, population growth, and globalization damage the environment. In this chapter, I reverse the relationship and discuss how environmental degradation and resource scarcity can foster conflict and, with or without conflict, can decrease the stability of the state and possibly affect U.S. National Security as shown in Figure 3, Environmental Security Diagram.

An analysis of this type is important to researchers and to the military community because the process takes a serious look at factors or conditions that may trigger the conflict and offers intervention points in the environment/state security relationship.

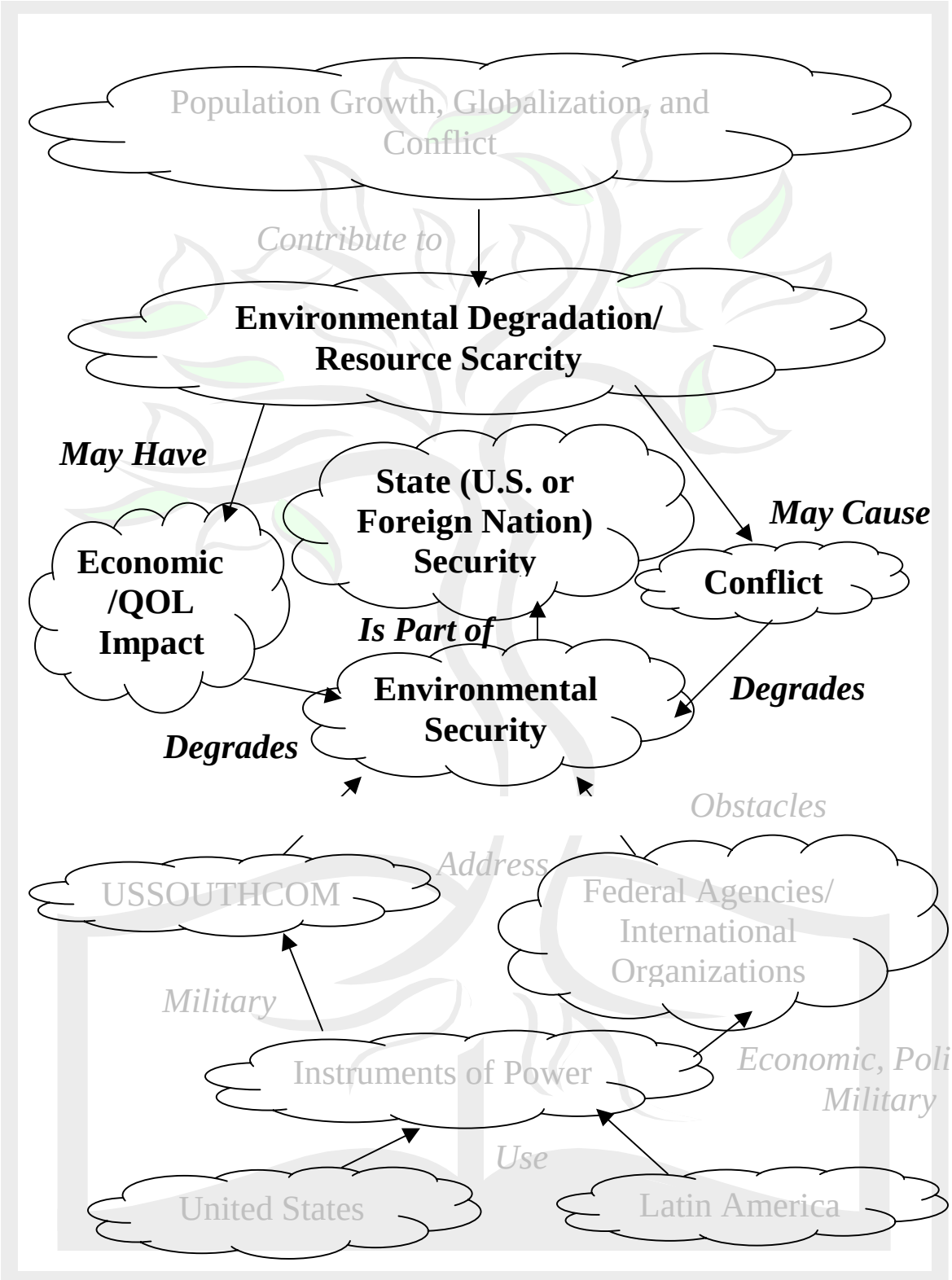

Figure 3. Environmental Security Diagram

Environmental Degradation/Resource Scarcity and Conflict

Thomas Homer-Dixon was my primary source on the connection between environmental issues and conflict. He states that environmental change may contribute to war, terrorism, or diplomatic and trade disputes, or it may have different causal roles, possibly proximate and powerful or distant and minor.[1] "In brief, our research showed that environmental scarcities are already contributing to violent conflicts in many parts of the developing world. These conflicts are probably the early signs of an upsurge of violence in the coming decades that will be induced or aggravated by scarcity. The violence will usually be sub-national, persistent, and diffuse."[2]

Homer-Dixon believes some types of environmental damage are more likely to contribute to social conflict than others. "Of the major environmental changes facing humankind, degradation and depletion of agricultural land, forests, water, and fish will contribute more to social turmoil in coming decades than will climate change or ozone depletion."[3]

Homer-Dixon also notes that environmental scarcity is not simply the result of degradation and depletion of environmental resources. "Two other important sources are population growth and unequal resource distribution. Scarcity often has its harshest social impact when these factors interact. As environmental scarcity becomes more severe, some societies will have a progressively lower capacity to adapt. Of particular concern is the decreasing capacity of the state to create markets and other institutions that promote adaptation."[4]

Jeff Stark, Frank McNeil, and Anthony T. Bryan of The Dante B. Fascell North-South Center have also conducted research in this area and cited specific regional examples of environmental damage leading to conflict. "We take it to be a given that, in certain circumstances, environmental degradation can foster conflictive relations. Although much of the literature on environment and security tends to be deductive and 'planetary' in its orientation, recent specific examples can be found from places as diverse as Central America, the Middle East, and the South China Sea."[5]

Simple Scarcity

Homer-Dixon researched three hypotheses for the cause of conflict resulting from severe environmental degradation—simple scarcity, group identity, and economic deprivation. "These should be considered ideal types: they will rarely, if ever, be found in pure form in the real world."[6] First is the concept that environmental scarcity causes simple scarcity conflicts between states. "Simple scarcity conflicts may arise over three types of resource in particular: river water, fish, and agriculturally productive land. These renewable resources seem particularly likely to spark conflict because their scarcity is increasing rapidly in some regions, they are often essential for human survival, and they can be physically seized or controlled. There may be a positive feedback relationship between conflict and reduced agricultural production: for example, lower food supplies caused by environmental change may lead countries to fight over irrigable land, and this fighting could further reduce food supplies."[7]

Although the hypothesis seems logical, his research indicates there is little empirical support for this hypothesis. "Scarcities of renewable resources such as forests and croplands do not often cause resource wars between states. This finding is intriguing

because resource wars have been common since the beginning of the state system. For instance, during World War II, Japan sought to secure oil, minerals, and other resources in China and Southeast Asia, and the 1991 Gulf War was at least partly motivated by the desire for oil."[8]

At this point, however, Homer-Dixon draws a distinction between the renewable resources discussed above and non-renewable resources like oil, coal and minerals, which can be more directly converted into state power, particularly military power. The renewable resources can also increase state wealth and power, but the process is lengthier and less direct. Additionally, "the very countries that are most dependent on renewable resources, and which are therefore most motivated to seize resources from their neighbors, also tend to be poor, which lessens their capability for aggression."[9]

The exception to this argument is river water. Water is the cornerstone to survival and the source is commonly shared by more than one country. Therefore, one country's actions can impact another country's use of the resource. "Conflict is most probable when a downstream riparian is highly dependent on river water and is strong in comparison to upstream riparians. Downstream riparians often fear that their upstream neighbors will use water as a means of coercion. This situation is particularly dangerous if the downstream country also believes it has the military power to rectify the situation."[10] Homer-Dixon found, however, in his review of historical and contemporary evidence, that water resource situations more often lead to internal, rather than international conflict, and specifically cited dam construction as particularly disruptive, especially to ethnic minorities who are, most often, dislocated by the action.

Group Identity

Dixon's second hypothesis is that environmental scarcity causes large population movement, which can, then, cause group identity conflicts. He found substantial evidence to support this hypothesis. "Group-identity conflicts are explained and predicted by group-identity theories. Such conflicts are likely to arise from the large-scale movements of populations brought about by environmental change. As different ethnic and cultural groups are propelled together under circumstances of deprivation and stress, we should expect intergroup hostility, in which a group would emphasize its own identity while denigrating, discriminating against, and attacking outsiders."[11]

Economic Deprivation

Dixon's third hypothesis is that environmental scarcity "simultaneously increases economic deprivation and disrupts key social institutions, which in turn causes 'deprivation' conflicts such as civil strife and insurgency."[12] Dixon found partial empirical evidence to support this hypothesis.

> Relative-deprivation theories indicate that as developing societies produce less wealth because of environmental problems, their citizens will probably become increasingly discontented by the widening gap between their actual level of economic achievement and the level they feel they deserve. The rate of change is key: the faster the economic deterioration, it is hypothesized, the greater the discontent. Lower-status groups will be more frustrated than others because elites will use their power to maintain, as best they can, access to a constant standard of living despite a shrinking economic pie. At some point, the discontent and frustration of some groups may cross a critical threshold, and they will act violently against other groups perceived to be the agents of their economic misery or thought to be benefiting from a grossly unfair distribution of economic goods in the society.[13]

Circumstances and Intervention

The existence of certain circumstances seems to increase the possibility of conflict resulting from environmental degradation/resource scarcity. The first of these is poverty. Homer-Dixon argues that poor societies already suffer from water, forest and fertile land shortages, and are less able to buffer themselves from the scarcity and resulting social crises.[14]

Because of poverty, environmentally-induced conflict will probably surface first in the developing world.

> In these countries, a range of atmospheric, terrestrial, and aquatic environmental pressures will in time probably produce, either singly or in combination, four main, causally interrelated social effects: reduced agricultural production, economic decline, population displacement, and disruption of regular and legitimized social relations. These social effects, in turn, may cause several specific types of acute conflict, including scarcity disputes between countries, clashes between ethnic groups, and civil strife and insurgency, each with potentially serious repercussions for the security interests of the developed world….Developing countries are likely to be affected sooner and more severely by environmental change than rich countries. By definition, they do not have the financial, material, or intellectual resources of the developed world; furthermore, their social and political institutions tend to be fragile and riven with discord.[15]

Homer-Dixon also believes poor countries will also have difficulty solving the environmental problems alone. "Although we must be careful not to slip into environmental determinism, when it comes to the poorest countries on this planet we should not invest too much faith in the potential of human ingenuity to respond to multiple, interacting, and rapidly changing environmental problems once they have become severe. The most important of the … factors … is the last: growing population, consumption, and environmental stresses will increase social friction. This will reduce the capacity of policymakers in developing countries to intervene as good social

engineers in order to chart a sustainable development path and prevent further social disruption."[16]

The second circumstance is actually a combination of three factors that leads certain groups to believe opportunities exist to overthrow authority. Conflict is more likely when (1) organized groups exist in society, (2) the groups perceive economic inequality and state instability, and (3) the groups believe their grievance avenues are blocked.[17]

The first factor is the existence of organized groups. At this point I remind the reader of the discussion in Chapter 2 of ethnic and religious conflict. Ethnic and religious groups can provide the cleavage necessary to organize teams for conflict.

> Challengers will have greater relative power if their grievances are articulated and actions coordinated through well-organized, well-financed and autonomous opposition groups. Since grievances felt at the individual level are not automatically expressed at the group level, the probability of civil violence is higher if groups are already organized around clear social cleavages, such as ethnicity, religion, or class. These groups can provide a clear sense of identity and act as nuclei around which highly mobilized and angry elements of the population, such as unemployed and urbanized young men, will coalesce….Factors that can influence both grievance and opportunity include the leadership and ideology of challenger groups, and international shocks and pressures such as changes in trade and debt relations and in costs of imported factors of production such as energy.[18]

The second factor in this combination is perceived state instability. "A state debilitated by corruption, by falling revenues and rising demand for services, or by factional conflicts within elites will be more vulnerable to violent challenges by political and military opponents; also vital to state strength is the cohesiveness of the armed forces and its loyalty to civil leadership."[19]

The third factor is the perceived unavailability or blockage of grievance avenues. Government type, particularly regime repressiveness, can contribute to this perception. "For instance 'semi-repressive' regimes may be more vulnerable to insurgency induced

by income inequality than are either highly repressive or democratic regimes. In semi-repressive societies, dissident groups can develop relatively strong organizations, but opportunities to engage in effective and nonviolent forms of political action are blocked."[20]

Within this factor is also the perceived legitimacy—fairness, appropriateness, and reasonableness of the regime. "A perception that the political and economic system is legitimate will moderate a citizen's sense of relative deprivation and will hinder the mass mobilization of discontent. Through various techniques of persuasion and distraction, policymakers may be able to sustain a perception of legitimacy even in the face of environmentally induced economic decline."[21]

One may believe that environmental stress and its impact on the particular country may be so severe they will be unable to build a credible military force to cause conflict. Homer-Dixon advises against this philosophy. "The North would surely be unwise to rely on impoverishment and disorder in the South for its security."[22]

Finally, in the discussion of the relationship between environmental issues and conflict, Winnefeld and Morris analyzed a model developed by Homer-Dixon that relates environmental problems to social problems, and social problems to possible conflict. The points where leadership would intervene in this process are in between the two types of problems or between the social problems and possible conflict. Winnefeld and Morris developed a helpful series of questions to analyze the process and determine possible leadership actions.

- What are the causes of environmental degradation?
- What can be done to reduce such degradation?

- What are the adverse environmental effects (and their causes) in the region?

- What can be done to reduce environmental problems that have important social effects?

- What are the adverse social effects that result from regional environmental problems?

- What can be done to reduce adverse social effects that might result in acute conflict?

- What are the types of possible acute conflict (and their likelihood) that might result from adverse social effects?

- What can be done to reduce the effects of acute conflict that will produce adverse environmental effects?[23]

Environmental Problems Affect State Security

Based on the previous section, environmental degradation/resource scarcity has the potential to create conflict. But, with or without the conflict, I will show that the environmental problems can affect state security.

With Conflict

The potential exists for states to fragment as a result of environmentally-induced conflict.

> Environmental scarcity has insidious and cumulative social impacts, such as population movement, economic decline, and the weakening of states. These can contribute to diffuse and persistent subnational violence. The rate and extent of such conflicts will increase as scarcities worsen.
>
> This sub-national violence will not be as conspicuous or dramatic as interstate resource wars, but it will have serious repercussions for the security interests of both the developed and the developing worlds. Countries under such stress may fragment as their states become enfeebled and peripheral regions are seized by renegade authorities and warlords. Governments of countries as different as the Philippines and Peru have lost control over outer territories; although both these cases are complicated, it is nonetheless clear that environmental stress has

> contributed to their fragmentation. Fragmentation of any sizeable country will produce large outflows of refugees; it will also hinder the country from effectively negotiating and implementing international agreements on collective security, global environmental protection, and other matters.
>
> Alternatively, a state might keep scarcity-induced civil strife from causing its progressive enfeeblement and fragmentation by becoming a 'hard' regime that is authoritarian, intolerant of opposition, and militarized. Such regimes are more prone to launch military attacks against neighboring countries to divert attention from internal grievances. If a number of developing countries evolve in this direction, they could eventually threaten the military and economic interests of rich countries.[24]

Without Conflict

However, conflict is not required for the environmental problems to cause state instability, as researched by Homer-Dixon. "Fastmoving, unpredictable, and complex environmental problems can overwhelm efforts at constructive social reform. Moreover, scarcity can sharply increase demands on key institutions, such as the state, while it simultaneously reduces their capacity to meet those demands."[25]

Homer-Dixon goes into greater detail on the non-conflictual impact of environmental scarcity on the state.

> First, environmental scarcity increases financial and political demands on governments. For example, to mitigate the social effects of loss of water, soil, and forest, governments must spend huge sums on industry and infrastructure such as new dams, irrigation systems, fertilizer plants, and reforestation programs. Furthermore, this resource loss can reduce the incomes of elites directly dependent on resource extraction; these elites usually turn to the state for compensation. Scarcity also expands marginal groups that need help from government by producing rural poverty and by displacing people into cities where they demand food, shelter, transport, energy, and employment. In response to swelling urban populations, governments introduce subsidies that drain revenues, distort prices, and cause misallocations of capital, which in turn hinders economic productivity. Such large-scale state intervention in the marketplace can concentrate political and economic power in the hands of a small number of cronies and monopolistic interests, at the expense of other elite segments and rural agricultural populations.

> Simultaneously, if resource scarcity affects the economy's general productivity, revenues to local and national governments will decline. This hurts elites that benefit from state largesse and reduces the state's capacity to meet the increased demands arising from environmental scarcity. A widening gap between state capacity and demands on the state, along with the misguided economic interventions such a gap often provokes, aggravates popular and elite grievances, increases rivalry between elite factions, and erodes the state's legitimacy.[26]

Stark, McNeil, and Bryan have looked at this issue of state security from a regional perspective, particularly as it applies to Latin America.

> - Environmental security is not simply a security issue. It is simultaneously part of the larger question of sustainable development, involving conservation and the wise use of the environment to produce economic growth and domestic progress and tranquility.
>
> - Environmental insult may spark violence but, more frequently (or in its early stages), it leads to conflictive relations, short of war or rebellion, that take a severe toll on the workings of economies, societies, and nations. This would seem to be especially the case in Latin America and the Caribbean.
>
> - Given the fact that U.S. policy views Latin America and the Caribbean as an 'economy of force' theater, close attention to the broader context of environmental security, the possible implications of conflict short of outright violence, and the challenges and opportunities for early intervention is both warranted and essential.
>
> - Both inter-state and intra-state conflict should be considered, with the latter the more likely possibility in most instances.
>
> - However, territorial disputes are a 'multiplier' that has the potential to interact negatively with environmental threats.
>
> - Environmental security is a two-way street. While environmental stresses may engender conflict, existing conflictive relations may contribute to environmental stresses.[27]

Environmental Problems as U.S. National Security Threats

Based on the research summarized in the previous two sections, we can agree that environmental degradation/resource scarcity can cause conflict. We can also agree that,

with or without the conflict, environmental degradation/resource scarcity can affect the stability of the state. Now, I want to extend the connection to actual threats to United States national security.

Before establishing this connection, I want to remind the reader of the definition of environmental security I developed in Chapter 1. For the purposes of this paper, I defined U.S. environmental security as a concept which specifically addresses threats to the viability and future success of U.S., its citizens, and/or strategic interests from two factors: (1) threats from environmental issues such as conflict, pollution, population growth, globalization, natural disasters, and resource use/scarcity that directly or indirectly impact the living conditions, economic well-being, and quality of life of U.S. citizens and (2) environmental threats as defined above that result in conflict within or between states whereby the conflict directly or indirectly negatively affects U.S. national security interests.

I also want to offer a perspective on the changing nature of national security as presented by Winnefeld and Morris in their RAND report.

> Part of the problem is that national security has traditionally been defined in military terms—in the ability to deter or repel outside aggression. But just as externally inspired subversion was considered a serious threat from the 1930s through the early 1980s, environmental degradation is becoming (along with extreme nationalism, religious radicalism, and economic conflict) a prime threat for the 21st century. This increasingly visible threat includes pollutants flowing across frontiers through air or water, major floods unleashed by denuded watersheds far from national borders, climate changes, deterioration of the agricultural base, deforestation and desertification, and the ensuing large-scale impoverishment and movement of populations.[28]

The 1999 National Security Strategy (NSS)—the guiding document for U.S. security policy—recognizes the globalized environmental threat and its impact on U.S. security.

> Globalization, however, also brings risks. Outlaw states and ethnic conflicts threaten regional stability and progress in many important areas of the world. Weapons of mass destruction (WMD), terrorism, drug trafficking and other international crime are global concerns that transcend national borders. Other problems originating overseas—such as resource depletion, rapid population growth, environmental damage, new infectious diseases, pervasive corruption, and uncontrolled refugee migration – have increasingly important implications for American security. Our workers and businesses will suffer if the global economy is unstable or foreign markets collapse or lock us out, and the highest domestic environmental standards will not protect us adequately if we cannot get others to achieve similar standards. In short, our citizens have a direct and increasing stake in the prosperity and stability of other nations, in their support for international norms and human rights, in their ability to combat international crime, in their open markets, and in their efforts to protect the environment.[29]

Within this document, the U.S. categorizes interests as *vital*, *important*, and *humanitarian and other*. First, vital interests are of broad, overriding importance to the survival, safety and vitality of the U.S. Second, important national interests are those that do not affect national survival, but they do affect national well-being and the character of the world. Third, humanitarian and other interests are circumstances under which the U.S. may act because values demand it.[30]

Environmental security falls into two of the three interest categories and threats to these interests constitute national security issues. Protecting the global environment from severe harm and crises with a potential to generate substantial and highly destabilizing refugee flows comes under important national interests. Additionally, promoting sustainable development and environmental protection is included in humanitarian and other interests.[31]

The NSS continues in greater detail on why environmental threats impact national security. "Decisions today regarding the environment and natural resources can affect our security for generations. Environmental threats to not heed national borders;

environmental peril overseas can pose long-term dangers to Americans' security and well-being. Natural resource scarcities can trigger and exacerbate conflict. Environmental threats such as climate change, stratospheric ozone depletion, introduction of nuisance plant and animal species, overharvesting of fish, forests and other living natural resources, and the transnational movement of hazardous chemicals and waste directly threaten the health and economic well-being of US citizens."[32]

The Department of Defense takes the overall guidance of the NSS and characterizes it for the military in the National Military Strategy (NMS). The 1997 NMS (most recent as of the date of this paper) paints a positive picture of security in traditional or Cold War terms. However, the document cautions that environmental strains and the resulting possibility of violence are significant challenges.

> Although the United States currently enjoys relative peace and security, the strategic environment remains complex and potentially dangerous. The threat of global war has receded. Former adversaries now cooperate with us across a range of security issues, and many countries view the United States as the security partner of choice. Our core values of representative democracy and market economics are embraced in many parts of the world, creating new possibilities for enduring peace, prosperity, and cooperation among nations. We are not confronted by a 'peer competitor'—a hostile power of similar strength and capability—nor are we likely to be in the near future. Given the United States' military potential and ability to deploy to any region of conflict, it is also unlikely that any regional power or coalition could amass sufficient conventional strength to defeat our Armed Forces. We therefore have an unprecedented opportunity to shape the future security environment. We are successfully adapting our military alliances to new realities and building security relationships with new coalition partners. There are, nonetheless, significant challenges. Ethnic, economic, social, and environmental strains continue to cause instability and the potential for violence. Regional conflict remains possible, proliferation of weapons of mass destruction is a major concern, and we face a number of nontraditional, transnational, and unpredictable threats to our security….
>
> The potential for conflict among states and groups remains our most serious security challenge."[33]

According to Kevin O'Brien of Jane's Intelligence Review, the environment can actually be an attack medium. "The recent US Quadrennial Defense Review forecast that US forces and the country itself, will be faced with 'increasingly sophisticated asymmetric challenges involving the use of chemical, biological and possibly nuclear weapons; attacks against the information systems of our forces and national infrastructure', as well as insurgency, terrorism and environmental destruction."[34]

Similarly, environmental sabotage is also listed in the NMS as an asymmetric means to counter the U.S. military. "Such asymmetric challenges are legitimate military concerns. We must increase our capabilities to counter these threats and adapt our military doctrine, training, and equipment to ensure a rapid and effective joint and interagency response."[35]

The NMS also recognizes environmental threats as transnational dangers.

> The security environment is further complicated by challenges that transcend national borders and threaten our national interests. Human emergencies other than armed conflict; extremism, ethnic disputes, and religious rivalries; international organized crime, including illegal trade in weapons, strategic materials or illicit drugs, as well as piracy; massive refugee flows; and threats to the environment each have the potential to put US interests at risk. These challenges can obstruct economic growth and democratic development and lead to conflict. Complicating the situation is the continued blurring of distinction between terrorist groups, factions in ethnic conflicts, insurgent movements, international criminals, and drug cartels. Failure to deal with such security concerns early in their development may require a more substantial response to a more dangerous problem later.[36]

At this point, I remind the reader of the complicated, synergistic nature of environmental threats when combined with ethnic and religious groups, economic degradation, terrorists, and state instability mentioned earlier in this chapter. The NMS also mentions this dangerous combination. "While asymmetric challenges and

transnational dangers are serious in themselves, a particularly grave 'wild card' is the combination of several such threats."[37]

The National Defense University's Institute for National Strategic Studies looked at threats in the 2001-2025 timeframe in a November 2000 report on Quadrenniel Defense Review issues. While the report does not specifically mention any environmental threats, it does mention threats that could be a result of environmental problems.[38] Terrorism could be the means of choice of a rogue organization driven into remote areas by environmental scarcity. Failed states could result from environmental issues as stated above. And one of the asymmetric means of warfare may be the use of environmental damage or pollution to attack the U.S.

According to the Environmental Security Supplement to USCINCSO Theater Engagement Plan, USSOUTHCOM supports my defined connection to national security. "Issues that threaten or further United States (U.S.) interests are national security issues. U.S. interests turn on regional stability. Environmental issues are now recognized as a major variable in regional instability, exacerbating existing tensions from religious, ethnic, and socio-economic conditions such as disparities between rural and urban areas, rapid economic development, and border disputes."[39] Environmental security is a national security issue for two reasons. First, environmental issues have the potential to threaten regional security. But, second, cooperative opportunities exist between the U.S. and Latin American countries to work on environmental issues together, thereby strengthening country-to-country relationships and making headway towards a cleaner, more environmentally stable world. According to USSOUTHCOM, "environmental issues also have the potential to promote regional cooperation through confidence

building measures, creating opportunities for communication and cooperation between states that might in all other ways be antagonists. Environmental cooperation offers a viable new option for U.S. preventive diplomacy and USSOUTHCOM engagement strategies."[40]

Lastly in this argument I provide a wargaming example. The Naval War College developed an exercise to assess global issues and their impact on U.S. national security in the coming decades. The results were very interesting. "In the Asian energy exercise, for example, the most salient point to emerge from the day-long discussion is that environmental security, as a byproduct of the search by Asian nations to use energy differently, could emerge as a serious U.S. national issue in the 21st century, according to [Thomas Barnett, the project's director]…'In short, the subject of environmental stress will become part and parcel of international security debates in the 21st century, and Asian economic growth will drive much of this discussion,' Barnett said.….'In addition to the events held on Asian energy and direct foreign investment, other exercises are being planned to assess international security implications that might arise from such topics as infrastructure protection, food and water, and demographics and the environment,' Barnett said."[41]

Conclusion

Chapter 3 established the connection between environmental degradation/resource scarcity and U.S. national security. I argued that environmental problems such as pollution, resource depletion, and environmentally-driven economic degradation can foster conflict and, with or without the conflict, the problems can degrade the stability of the state and impact U.S. strategic interests and, therefore, affect U.S. national security.

In the next chapter, I will discuss how the U.S. uses the economic, political and military instruments of power to enhance environmental security.

Notes

1 Thomas Homer-Dixon, "On the Threshold: Environmental Changes as Causes of Acute Conflict, Part 1" *Peace and Conflict Studies Program, University of Toronto, International Security,* Volume 16, Number 2, Fall 1991, 8; 14 December 2000, on-line, Internet, available from http://www.library.utoronto.ca/pcs/thresh/thresh1.htm.

2 Thomas Homer-Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases, Part 1," *Peace and Conflict Studies Program, University of Toronto, International Security,* Vol 19, No. I, 8; 14 December 2000, on-line, Internet, available from http://www.library.utoronto.ca/pcs/evidence/evid1.htm.

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4 Thomas Homer-Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases, Part 3," *Peace and Conflict Studies Program, University of Toronto, International Security,* Vol 19, No. I, 8; 14 December 2000, on-line, Internet, available from http://www.library.utoronto.ca/pcs/evidence/evid3.htm.

5 Jeff Stark, Frank McNeil, Anthony T. Bryan, *Environmental Stresses and Regional Security in Latin America and the Caribbean,* (The Dante B. Fascell North-South Center, University of Miami, October 1999), 4.

6 Thomas Homer-Dixon, "On the Threshold: Environmental Changes as Causes of Acute Conflict, Part 3" *Peace and Conflict Studies Program, University of Toronto, International Security,* Volume 16, Number 2, Fall 1991, 11; 18 December 2000, on-line, Internet, available from http://www.library.utoronto.ca/pcs/thresh/thresh3.htm.

7 Ibid.

8 Thomas Homer-Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases, Part 2," *Peace and Conflict Studies Program, University of Toronto, International Security,* Vol 19, No. I, 8; 14 December 2000, on-line, Internet, available from http://www.library.utoronto.ca/pcs/evidence/evid2.htm.

9 Ibid.

10 Ibid.

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14 Thomas Homer-Dixon, "Environmental Scarcities and Violent Conflict: Evidence from Cases, Part 1," *Peace and Conflict Studies Program, University of Toronto, International Security,* Vol 19, No. I, 8; 14 December 2000, on-line, Internet, available from http://www.library.utoronto.ca/pcs/evidence/evid1.htm.

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16 Thomas Homer-Dixon, "On the Threshold: Environmental Changes as Causes of Acute Conflict, Part 3" *Peace and Conflict Studies Program, University of Toronto, International Security,* Volume 16, Number 2, Fall 1991, 11; 18 December 2000, on-line, Internet, available from http://www.library.utoronto.ca/pcs/thresh/thresh3.htm

17 Quoted by Thomas Homer-Dixon, "On the Threshold: Environmental Changes as Causes of Acute Conflict, Part 3" *Peace and Conflict Studies Program, University of Toronto, International Security,* Volume 16, Number 2, Fall 1991, 11; 18 December 2000, on-line, Internet, available from http://www.library.utoronto.ca/pcs/thresh/thresh3.htm.

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21 Thomas Homer-Dixon, "On the Threshold: Environmental Changes as Causes of Acute Conflict, Part 3" *Peace and Conflict Studies Program, University of Toronto, International Security,* Volume 16, Number 2, Fall 1991, 11; 18 December 2000, on-line, Internet, available from http://www.library.utoronto.ca/pcs/thresh/thresh3.htm.

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Chapter 4

Instruments of Power

It's kind of fun to do the impossible.

Walt Disney

Introduction

The previous chapters described the recent changes to the world organizational structure and the Global North/Global South division. I also discussed the relationship between conflict, population growth, globalization and environmental degradation/resource scarcity. Most recently in Chapter 3, I covered the connection between environmental degradation/resource scarcity, conflict, and state and U.S. national security. Chapter 4 will focus on the U.S. instruments of power (IOP)—economic, political, and military—used through USSOUTHCOM and international organizations to execute an environmental security program as shown in Figure 4, Environmental Security Diagram. The premise for this chapter will be that the U.S. recognizes environmental problems as national security threats and the U.S. strategy to mitigate those threats is one of engagement.[1]

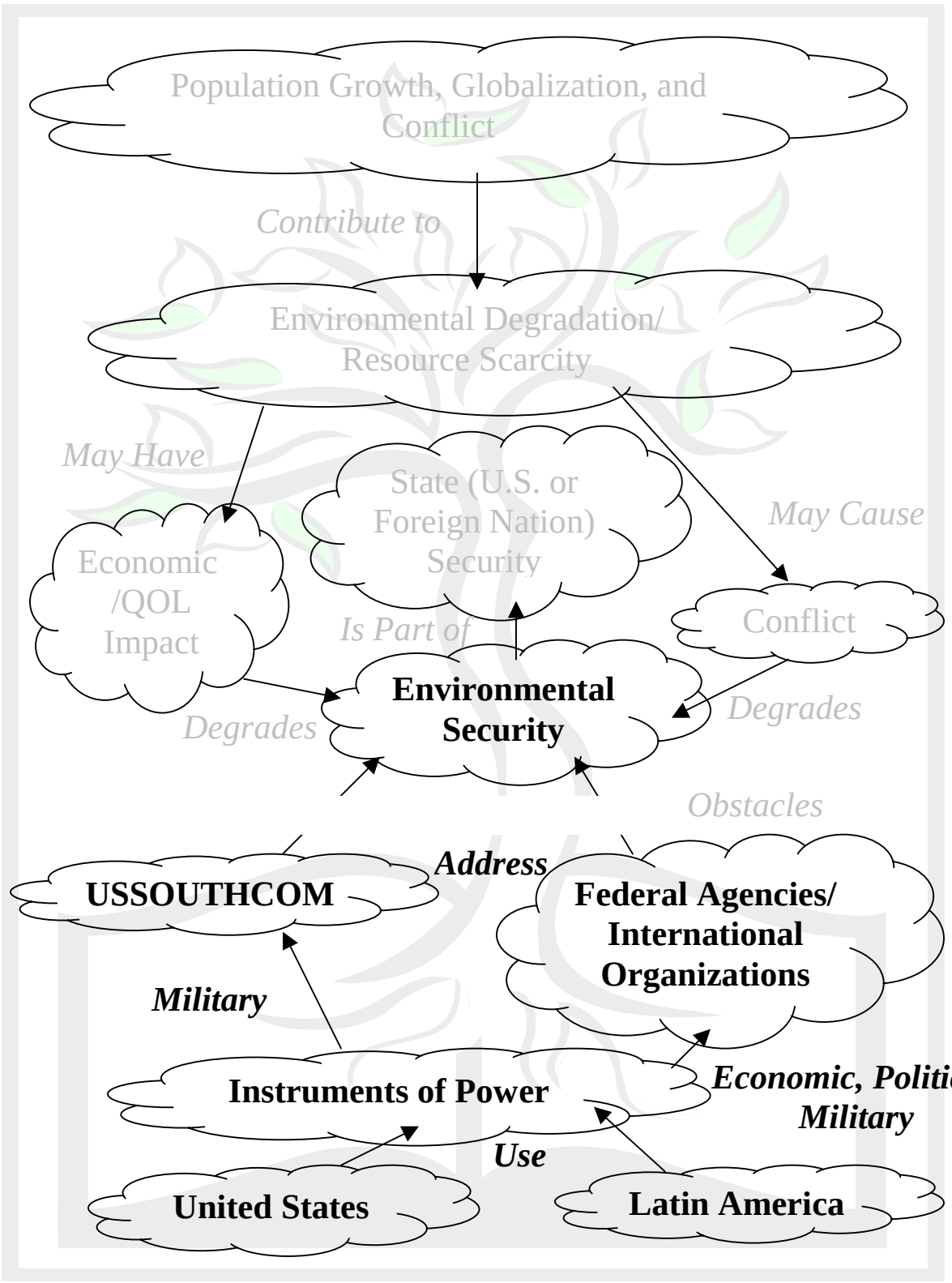

Figure 4. Environmental Security Diagram

Latin America

Before one can develop strategies for the successful implementation of an environmental security plan for a particular region, one must understand the region from a governmental, geographical, and environmental perspective. I've already discussed the governmental aspects of Latin America, namely, that most of the countries are democracies, with the complicating factor being the uncertain future of some governments. Additionally, I discussed the geographical area of responsibility for USSOUTHCOM, the dangers—conflict, population growth, globalization, and environmental degradation/resource scarcity—that exist in Latin America, and the states' limited capacity to control those problems politically and economically. As Mark Everingham of the North-South Center says, "The ability of the Latin American state to control human, financial, and natural resources is being eroded by the 'global rules of the game' embedded in the present world economy. In the current international political economy, state authority has gradually been ceded in part to a coalition of interests in export-oriented commercial, industrial, and financial activities."[2]

Environmental Problems and Causes

Although some Latin American environmental problems were covered in Chapter 2, it is important to remind the reader of both the extent of the damage and the complex nature of the solutions. This discussion will set the stage for a coordinated involvement of all three instruments of power, mentioned later in this chapter. Chris Harwell of the North-South Center provides an overview of the Western Hemispheric environmental problems and introduces economic intervention that must occur in the future.

> Among the scientific and environmental communities throughout the hemisphere, there is little or no disagreement over the basic scenario: the environment in the Americas is under systematic attack. From Alaska to Tierra del Fuego, the ecological quality of life has declined and will continue to decline unless multilateral, North/South cooperation is strengthened. Most of what the scientific communities have identified as problems is not in dispute by the governments of the hemisphere: violence and civil war that create ecological problems directly and indirectly through economic and social disruption; fishing resource depletion in the Pacific Northwest and the Caribbean; transnational air pollution in the North; North/South pesticide, fungicide and hazardous waste trade and disposal; industrial effluents into the air and water; the 'circle of poison,' which returns exported toxins to the North in the form of food and other products; the spillovers of the drug trade and the drug war that damages rivers, foliage, and human lives; depletion of water resources from the Pacific Northwest and the Northern Atlantic into South America; human health and sanitation problems in urban and rural areas; severe air quality problems in major capitals across the Americas; deforestation throughout the hemisphere; loss of habitat and species on land and at sea; production and use of CFCs that cause ozone depletion in the higher latitudes; and the global climate change issue leading to rises in temperature and sea levels.
>
> The immediate and undeniable conclusion is that development in the current hemispheric context is not sustainable. And any future increase in economic activity that would be generated by growth of free trade zones, common markets, economic communities, and customs unions must be carefully scrutinized in order to evaluate its potential impact, negative and/or positive, on the environment.[3]

Robin Rosenberg of the North-South Center offers a perspective on the interaction between various economies in the Western Hemisphere and discusses the causes of Latin American environmental problems.

> The *market economy*, or the world of commerce, comprises both developed nations and emerging economies, including Latin American and Caribbean societies. These countries account for a large share of the world's energy and resource consumption. They also leave large ecological footprints. The *traditional village-based way of life economy*, found in the rural areas of Latin America and the Caribbean, is made up of subsistence-oriented people who meet their basic needs directly from nature. Land-hungry farmers resort to the cultivation of unsuitable areas: steeply sloped, erosion-prone hillsides; semiarid land where soil degradation is rapid; and tropical forests where crop yields on cleared fields frequently drop sharply after just a few years. These farmers have short time horizons and high implicit discount rates, leading to faster

> environmental degradation. The third economy, or *nature's economy*, consists of the natural systems and resources that support the market and traditional economies. Renewable resources such as soil and forests will replenish themselves, as long as their use does not exceed critical thresholds. However, forests, soils, water, and fisheries all are being pushed beyond their limits by human population growth and rapid industrial development in rural areas of Latin America and the Caribbean.
>
> In general, in the Latin American and Caribbean region, land degradation, deforestation, and biodiversity problems are the result of the following causes:
>
> 1. Market and policy failures, such as underpricing of resources, input subsidies, and lack of information about viable technologies on marginal lands, which lead to resource-degrading externalities.
>
> 2. Rapid population growth that exerts pressure on land resources for subsistence and commercial needs.
>
> 3. Resource tenure structures that encourage short-term exploitation rather than longer-term conservation.
>
> 4. Institutional weaknesses that encourage mismanagement of resources. [italics in original][4]

Role of the United States in the 21st Century

In this new world, the U.S. clearly stands as the hegemon—the only superpower, economically, politically, and militarily. No other country has the might to stand as the international leader and choose its own destiny. With this power, the U.S. has the capability to chart a course for the world through newfound dangers and security risks. Closer to home, the U.S. also has a responsibility to protect its citizens and ensure the future of the state. So, when faced with a danger or a threat, the U.S. must respond by identifying the source, developing a strategy, and executing that strategy using an appropriate amount of economic, political, and military power to secure the continued viability and success of the nation. But, because U.S. power is not limitless, the never-

ending struggle for U.S. leaders revolves around which threats are the most significant and which instrument of power is most effective against those threats.

U.S. power is not only limited, there are many who believe the U.S. hegemonic role is diminishing, despite her current unmatched strength.[5] Countries and unions exist that may, in the next 20-30 years become peers with the U.S. China, the European Union, and Japan have the potential to grow militarily, economically and politically to rival the U.S. For example, the European Union is beginning to build a military, and will have a 60,000 person force by 2003.[6] Certainly a 60,000-person military does not compare with the 1.4 million in the U.S. armed forces, but it signals a beginning for a union that is already economically and politically powerful. Additionally, although the U.S. has held the world's largest economy for more than a century, at present trajectories, China may take over that role in the first half of the 21st century.[7] If the transition from hegemon to "first among equals" occurs, the adjustment will not be easy for the U.S. or the world. But, world reaction will certainly depend on how the U.S. handles the shift and how well the other powers adjust to their newfound significance. If the predictions hold, cooperation, not coercion, must be the cornerstone of U.S. foreign policy.

Why do the experts predict a weakening of U.S. hegemonic power? The answer lies in many indicators. Debt burdens; trade imbalances; lower investment in public infrastructure (required to stimulate future growth) than all the other G-7 industrialized powerhouses; low savings rate and insufficient investment in education; all point to the U.S. losing its ability to compete with other economies. On top of the lack of infrastructure investment is "imperial overstretch." "As [Paul] Kennedy argued, 'The U.S. now runs the risk that the sum total of [its] global interests and obligations is

nowadays far larger than the country's power to defend them all simultaneously.' This prediction derives from a principle suggested by past hegemonic experiences, namely 'that a power that wants to remain number one for generation after generation requires not just military capability, not just national will, but also a flourishing and efficient economic base, strong finances and a healthy social fabric, for it is upon such foundations that the country's military strength rests in the long term."[8]

Another reason for the U.S. possibly losing its hegemonic role is that a leading country may no longer be needed, at least as far as international free trade is concerned.[9] The free trade system encouraged and fostered by the U.S. may have matured enough to stand on its own, without an overseeing power. The system may also have globalized and multinationalized beyond the ability of the U.S. to guide it alone.[10]

Militarily, the U.S. technological advantage will continue well into the 21st Century. But, experts question the relative use of military power in today's world, particularly with the new challenges discussed earlier and their impact on national security. Additionally, the relationship between the ability to raise an army and the relative size and age of the country's population arises, which may weaken the relative advantage of the U.S. war machine.[11]

Lastly, international organizations are becoming a more significant part of foreign policy. Despite her hegemonic power, the U.S. cannot, by itself, exert the same political and economic power as it can via international organizations. Economic, political, and military IOPs are used through organizations such as the United Nations, World Bank, World Trade Organization, Organization of American States, and others. These organizations are, however, a double-edged sword. On the negative side, although the

U.S. reserves the right to act unilaterally, the inability to politically persuade other nations to participate in the effort can, ultimately, lead to failure.

On the positive side, in some cases, particularly when funding is involved, Latin America has responded favorably to offers of assistance when made through international organizations.

> While the development imperative drives the debate, it also demarcates the North/South boundary line. Pressure on the developing countries for greater protection of the environment—especially the rain forests—comes mainly from governments and environmental non-governmental organizations (NGOs) in the developed countries (and from some of their counterparts in developing countries), and has grown stronger in the face of growing trends toward trade liberalization and regional economic integration. The countries of the South have responded in different ways to this pressure. Some have allowed multilateral financial institutions like the World Bank, the International Monetary Fund (IMF) and the Inter-American Development Bank (IDB) (which recently have recognized the need to integrate environmental concerns into all operations) to use their leverage in a number of ways: debt-for-nature swaps, environmentally sound development projects, and the raising of national environmental consciousness and legal standards.[12]

Relative power shifts, weakening hegemonic strength, the changing role of military power, and the growing influence of international organizations--all these factors point to changes in U.S. foreign policy.

U.S. Policy

Despite the ever-changing world environment, the U.S. authority and responsibility to protect its borders from all dangers remains firm. That authority was born in the Peace of Westphalia in 1648 with the modern concept of state sovereignty—the precept that no one is above the state.[13] "In this conception, state sovereignty, a cornerstone of international law, gives heads of state the freedom—and responsibility—to do whatever is necessary to advance the state's interests and survival."[14] International law recognizes

this responsibility and gives states "special status as the principal holders of economic and military capabilities in world affairs, and assigns to states alone the legal right to use armed force."[15]

Given that backdrop, the U.S. develops national policy, based on the perceived dangers to the U.S., worldwide obligations and circumstances, and the relative U.S./international ability to disarm the dangers and meet the obligations within the powers available. This power consists of, level of economic development, the type and influence of the government, and military capabilities translating into the three primary instruments of power—economic, political, and military. In general, these powers enable states to promote and protect national interests.

Crafting U.S. policy is complicated. Many other factors affecting its creation besides perceived threats and instruments of power including states' economy, their population and territorial size, geographical position, raw materials, degree of dependence on foreign sources of materials, technological capacity, national character, ideology, efficiency of governmental decision making, industrial productivity, volume of trade, savings and investment, education level, and national morale and internal solidarity.[16]

United States National Security Strategy View

Leaders studied the above-listed factors and built the 1999 U.S. National Security Strategy (NSS) on three core objectives that emphasize the broad, cooperative nature of U.S. strategy. The objectives--*enhancing American security; bolstering our economic prosperity;* and *promoting democracy and human rights abroad*--form the foundation for

the actions taken not just by the U.S. military, but by all involved U.S. departments tasked to execute U.S. strategy.[17]

The U.S. NSS also addresses Latin America, specifically discussing democracy, security, sustainable development, and Cuba. "Our hemisphere enters the twenty-first century with an unprecedented opportunity to secure a future of stability and prosperity – building on the fact that every nation in the hemisphere except Cuba is democratic and committed to free market economies….The principal security concerns in the hemisphere are transnational in nature, such as drug trafficking, organized crime, money laundering, illegal immigration, firearms trafficking, and terrorism."[18]

The NSS recognizes the need for environmentally sustainable development to ensure continued prosperity in the western hemisphere. "From our shared seas and freshwater resources to migratory bird species and transboundary air pollution, the environmental policies of our neighbors can have a direct impact on quality of life at home. U.S. government assistance to the region recognizes the vital link between sustainable use of natural resources and long-term prosperity, a key to developing prosperous trading partners in this hemisphere."[19]

Lastly, the U.S. NSS includes continued efforts in Cuba.

> The United States remains committed to promoting a peaceful transition to democracy in Cuba and forestalling a mass exodus that would endanger the lives of migrants and the security of our borders. While maintaining pressure on the regime to make political and economic reforms, we continue to encourage the emergence of a civil society to assist the transition to democracy when the change comes. As the Cuban people feel greater incentive to take charge of their own future, they are more likely to stay at home and build the informal and formal structures that will make transition easier. Meanwhile, we remain firmly committed to bilateral migration accords that ensure migration in safe, legal and orderly channels.[20]

Political and Economic Instruments of Power

In pursuing U.S. national interests and executing the NSS, the nation has the option of using political, economic, and/or military power. Countries IOPs can be categorized as soft or hard. Soft power is the capacity for a country to get what it wants through the attraction of its ideals and ideas rather than through the exercise of coercion by means of military force or economic sanctions. Hard power is the ability to exercise influence in world politics through a state's possession of tangible resources such as military capabilities or economic strength. "If soft power grows in relative importance in today's so-called information age, military force ratios will no longer translate into power potential in the way they once did."[21]

In distinguishing between the three types of power, we can say that all power is politics, the exercise of influence to control and dominate others. States are usually ranked by their capabilities or resources presumed necessary to achieve influence this power.[22] Implementing the U.S. NSS requires political power. "International cooperation will be vital for building security in the next century because many of the challenges we face cannot be addressed by a single nation. Many of our security objectives are best achieved—or can only be achieved—by leveraging our influence and capabilities through international organizations, our alliances, or as a leader of an ad hoc coalition formed around a specific objective. Leadership in the United Nations and other international organizations, and durable relationships with allies and friendly nations, are critical to our security."[23]

The U.S. also relies heavily on the economic IOP. The second core objective of the U.S. national security strategy is to promote America's prosperity through efforts at home and abroad. "Our economic and security interests are inextricably linked….As national

economies become more integrated internationally, U.S. prosperity depends more than ever on economic developments abroad."[24] Additionally, according to former U.S. Assistant Secretary of Defense Joseph Nye, "Power in the 21st century will depend on economic growth and mastering the information revolution, not on the brute nuclear force of the twentieth century. Nuclear weapons are not a power equalizer, and they cannot be used to blast one's way into an imagined great power club."[25]

Some of the political and economic actions dictated by the NSS to enhance environmental security include *debt relief, promoting an open trading system, and promoting sustainable development*. I want to cover each of these actions in more detail.

First, debt relief can brighten the future of foreign countries by reducing their economic burden and promoting regional stability. At the same time, the effort can be combined with ecological relief by structuring the economic agreement to include environmental setasides. The NSS says, "When combined with other efforts, such as our cooperative scientific and technological programs, U.S. aid initiatives can help reduce the need for costly military and humanitarian measures."[26]

Second, the U.S. recognizes the need to promote an open trading system. "In a world where over 96 percent of the world's consumers live outside the United States, we must continue to expand our international trade to sustain economic growth at home."[27] In liberalizing trade, however, the U.S. will not sacrifice environmental protection, as evidenced by U.S. leadership in incorporating environmental provisions into the WTO agreements and the creation of the Committee on Trade and the Environment.

According to Robin Rosenberg of the North-South Center, controversy exists in this trade/environment relationship. "But its importance in multilateral, regional, and

bilateral agendas has been increasing. Some examples are the Trade and Environment Committee of the WTO, the North American Free Trade Agreement (NAFTA), and bilateral agreements like the one made by Canada and Chile."[28]

The reason for the trade controversy is U.S. versus Latin American economic perspectives.

> In the case of the United States, interest in promoting the inclusion of this issue [the environment] within the FTAA framework is based fundamentally on a political aspect and a preoccupation about loss of competitiveness due to unfair competition. The political aspect is that U.S. civil society's high level of organization and concern for the environment make it a strong pressure group to consider when making governmental decisions. The concern over unfair competition is due to the risk of lower prices in competing countries whose structures do not incorporate protective measures into production processes that could cause potential harm to the environment.
>
> The positions of the United States and Latin America are based on experiences that validate their corresponding fears and defensive positions. Independent of these fears and defensive positions, the environmental issue has been increasingly important in international discussions, reducing the options of assuming an indifferent position or of totally excluding the issue from the negotiation processes.[29]

On the surface, tying trade agreements to environmental protection sounds promising, particularly with the Free Trade Agreement in the Americas looming on the horizon. Some in Latin America, however, are concerned. "In the developing countries, there is growing fear that the concerns of environmental groups and organized labor will emerge as a 'new protectionism' that will seriously threaten the global trading system and their chances of real economic growth through trade. All of these developmental, environmental, and social concerns were the combustive components of the street violence and the failure of the WTO Ministerial Conference to launch its proposed Millennium Round negotiations in Seattle in December 1999."[30]

Various theories exist on how to solve this dilemma. According to Robin Rosenberg, the solution requires transparency, a thorough understanding of the problem, and commitment from the involved parties to find joint accommodations that promote trade while still protecting the environment.[31] "What is needed … is the development, both at the regional level and worldwide, of sustainable consumption and production patterns that emphasize optimization of resource use and minimization of wastes by developing environmental competitiveness through the application of clean production technologies. This must be negotiated as a requirement in all regional, subregional and bilateral trading agreements."[32]

This quote leads to the third action, promoting sustainable development, which means meeting current resource needs without mortgaging the future. According to the NSS, the overall theme is that while the world is not capable of sustaining the current population and economic growth rates, efforts to promote sustainable development continue to be impeded in most of the world.

> Developing countries face an array of challenges in their efforts to achieve broad-based economic and social progress and participate more fully in the opportunities presented by globalization. Poor environmental and natural resource management can impede sustainable development efforts and promote regional instability. Many nations are struggling to provide jobs, education and other services to their citizens. Three billion people, half the world's population, subsist on less than two dollars a day. Their continued poverty leads to hunger, malnutrition, economic migration and political unrest. Malaria, AIDS and other epidemics, including some that can spread through environmental damage, threaten to overwhelm the health facilities of developing countries, disrupt societies and economic growth, and spread disease to other parts of the world.[33]

In theory, the concept of sustainable development is appealing. Latin American countries have agreed to the idea, but have yet to fully implement it. "There is a very generalized opinion in the sense that the true scope of the concept of sustainable

development and the meaning of the commitments and aspirations arose at the Earth Summit and at other Summits related to sustainability have been very little broadcast and even less assimilated in the region."[34] In addition, most countries have been unable to implement sustainable development into long-term strategies. Instead, contradiction exists between social, economic, environmental and social policies, exacerbated by political terms of service.

Failure to implement sustainable development programs has many fathers. In some cases, it is lack of political will, or inadequate resources. Poverty reduction is another one of the main obstacles, as is education. Lastly, "There has not been a regional strategy to finance sustainable development integrating subjects such as international trade, external debt, technical and financial cooperation, generation of economic incentives and transference of technology."[35]

To address these failures, the US foreign assistance program includes five key elements of sustainable development: broad-based economic growth, human capacity development, environmental protection, population and health, and democracy.[36] The philosophy is, to properly implement sustainability requires true commitment from, and a communications link between, both the government and beneficiaries. The process must be transparent with systemized information flow. The implementation process must include established and advertised goals against which programs are evaluated.[37] The efforts should focus on degradation, contamination, and energy problems, with "regional organizations and governments [identifying] economic alternatives which promote social equity and environmental sustainability specially in the rural areas through instruments,

such as ecotourism, joint implementation, internalization of environmental costs, and other environmental service payment mechanisms."[38]

Military Instrument of Power

Among experts, the applicability of the military instrument of power to today's new threats is subject to debate. According to one argument, wars as we've known them in the 20th century, are obsolete. With no cold war-type confrontation, conflicts involving the military will be small, one country affairs, involving ethnic ideals or terrorist tactics.

Instead, the relative use of military power becoming overshadowed by economic power. "Of all the components of state power, military capability is usually thought to be the most important….Because realism assumes that the ability to coerce is more important than the ability to reward or to purchase, realists believe that military capability is a more important source of power than economic capability. By contrast, other strategic thinkers argue that in the twenty-first century, economic competition will be increasingly more critical to national strength and human security than military competition."[39]

According to the latter argument, the relative impotence of military power is due to two factors. First, most security threats today are internal, not external, such as population growth and resource scarcity. The military, according to this argument, is of little use against these threats. Second, the costs of waging war in today's world outweigh the benefits, in terms of human and economic losses.[40]

Despite this argument and the obvious importance of economic and political power, the U.S. believes military power is vital to its national security. The possibility of war and the associated death and destruction is worth the deterrence investment. The nation

has, therefore, built a force without equal in the world to provide regional stability, deter rogue nations from entering into war, and engage in humanitarian operations when requested. But the cost is high. For example, in 1998 the U.S. was the globe's biggest spender on the military, accounting for over one-third of the world's total $745 billion military expenditures.[41] Other countries agree with the U.S. philosophy. Although, military spending has declined about one-third since the peak-year high of $1.36 trillion in 1987, it has increased 15 fold since the 1930s, a rate exceeding that of world population, expansion of global economic output, expenditures for public health to protect people from disease, and prices.[42]

The U.S. uses this investment to build a military capable of accomplishing the objectives directed by the National Command Authorities. "For the joint force of the future, this goal will be achieved through full spectrum dominance – the ability of US forces, operating unilaterally or in combination with multinational and interagency partners, to defeat any adversary and control any situation across the full range of military operations. The full range of operations includes … noncombatant humanitarian relief operations and support to domestic authorities."[43]

Yet, this "range of operations" must be tied to national security interests. As General Colin Powell said, "there is no legitimate use of military force without a political objective."[44] So, while the U.S. military must be able to dominate any adversary, they must also play a political role through engagement activities with other countries as described in the National Security Strategy.

> The US military plays a crucial role in shaping the international security environment in ways that protect and promote US interests, but is not a substitute for other forms of engagement, such as diplomatic, economic, scientific, technological, cultural and educational activities. Through

> overseas presence and peacetime engagement activities such as defense cooperation, security assistance, and training and exercises with allies and friends, our Armed Forces help to deter aggression and coercion, build coalitions, promote regional stability and serve as role models for militaries in emerging democracies. With countries that are neither staunch friends nor known foes, military cooperation can serve as a positive means of building security relationships today that will contribute to improved relations tomorrow. At the same time, we remain firmly committed to human rights and we will continue to ensure that we do not train or assist known human rights abusers.[45]

It's clear from the NSS that U.S. leadership's view of the military's role in the world is quite extensive. "In addition to defending the US homeland, the United States must be prepared to respond to the full range of threats to our interests abroad. Smaller scale contingency operations encompass the full range of military operations short of major theater warfare, including humanitarian assistance, peace operations, enforcing embargoes and no-fly zones, evacuating US citizens, and reinforcing key allies."[46]

With this battery of capabilities and responsibilities, when should the military be employed? What are the criteria? These questions are particularly pertinent when *important* or *humanitarian and other*, not *vital*, interests, such as environmental issues, are at stake. According to the NSS,

> In situations posing a threat to important national interests, military forces should only be used if they advance US interests, they are likely to accomplish their objectives, the costs and risks of their employment are commensurate with the interest at stake, and other non-military means are incapable of achieving our objectives. Such uses of military forces should be selective and limited, reflecting the importance of the interests at stake….The decision to employ military forces to support our humanitarian and other interests focuses on the unique capabilities and resources the military can bring to bear, rather than on its combat power. Generally, the military is not the best tool for humanitarian concerns, but under certain conditions, use of our Armed Forces may be appropriate. Those conditions are when the scale of a humanitarian catastrophe dwarfs the ability of civilian relief agencies to respond, when the need for relief is urgent and only the military has the ability to provide an immediate response, when the military is needed to establish the preconditions necessary for effective application of other instruments of national power,

> when a humanitarian crisis could affect US combat operations, or when a response otherwise requires unique military resources. Such efforts by the United States, preferably in conjunction with other members of the international community, will be limited in duration, have a clearly defined mission and end state, entail minimal risk to American lives, and be designed to give the affected country the opportunity to restore its own basic services.[47]

USSOUTHCOM. The USSOUTHCOM is the military extension of the U.S. into Latin America. The Command was created by the Goldwater-Nichols Department of Defense Reorganization Act of 1986. The law "gave the power to direct and unify weapons use, training and tactics from each service to the 'unified combatant commands,' a term for the commands run by the CINCs."[48] The command is one of nine unified commands throughout the world with assigned personnel from U.S. Air Force, Army, Marine Corps and Navy.[49]

The command is headquartered in Miami, Florida. Approximately 1,200 people are assigned there, with about 1,900 in component commands in Puerto Rico, Arizona and Honduras, operating on an annual budget for fiscal year 2000 of $112.8M including $27M in counter-drug funds and $8.4M in intelligence funds. [50]

The USSOUTHCOM's responsibilities are diverse and cover much of the Western Hemisphere: "all U.S. military activities on the land mass of Latin America south of Mexico; the waters adjacent to Central and South America; the Caribbean Sea, with its 13 island nations, and European and U.S. territories; the Gulf of Mexico; and a portion of the Atlantic Ocean."[51] The countries USSOUTHCOM is engaged in cooperative efforts with include: Antigua and Barbuda, Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, St. Kitts and Nevis, St. Vincent and the Grenadines, St. Lucia, Suriname, and Trinidad-Tobago in the Caribbean; Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama in Central America;

Bolivia, Colombia, Ecuador, Peru, and Venezuela in the Andean Ridge; and Argentina, Brazil, Chile, Paraguay, and Uruguay in the Southern Cone of South America. USSOUTHCOM's efforts are geared toward developing multilateral approaches to sustain and reinforce positive democratic and economic trends and promote regional stability. "These multilateral approaches also provide a framework to mitigate shared challenges that pose a threat to the well being and development of the democracies in the hemisphere"[52]

USSOUTHCOM's efforts flow from the U.S. National Security Strategy, the National Military Strategy and Joint Vision 2020.

> The United States Southern Command … has developed programs for military-to-military contacts and combined exercises which have grown from bilateral initiatives to recurring multilateral programs. For instance, command post exercises dealing with peacekeeping, disaster relief, and counternarcotics scenarios are conducted each year with clusters of Central American, Caribbean, and South American nations. Additionally, hemispheric conferences and orientation visits, incorporating both military and civilian officials, have addressed topics as varied as international peacekeeping, civil-military relations, integrated security strategies, and human rights. However, this multilateral agenda is executed largely due to U.S. initiative, and is not related to any formal oversight or particular contributions by the Organization of American States or the Inter-American Defense Board. Paradoxically, this implies that the U.S. military is more interested in multilateralism in security issues than are those very multilateral institutions which comprise the Inter-American System – a complete reversal of the pattern at the birth of that system.[53]

The Southern Command's theater strategy is also derived directly from the President's National Security Strategy. It is based on promoting regional security and stability between supporting democracies, and supports U.S. interests in four principal ways:

> **Building regional cooperative security** by promoting activities that develop cooperative security arrangements and confidence building measures between neighbors that can contribute to reduced inter-state and regional tensions.

> **Developing military roles and missions for the 21st century** by assisting Latin American and Caribbean armed forces in their development of appropriate force structures and doctrines that demonstrate support for human rights and subordination to civilian authority….
>
> **Supporting the national counterdrug strategy** by providing military support to the counterdrug efforts and programs of U.S. agencies and committed allies….
>
> **Restructuring USSOUTHCOM for the future** by positioning and restructuring USSOUTHCOM to ensure continued support of U.S. national security interests throughout the area of responsibility well into the 21st century. [emphasis in original][54]

Current USSOUTHCOM Role in Environmental Security. Considering the foundation described above, it is important to understand USSOUTHCOM's current role in this region as it relates to environmental security and as perceived by the command. This role is described in the mission statement and vision from the Command's Draft Environmental Security Supplement. "USSOUTHCOM conducts environment related engagement activities to shape the security environment in order to build the capability for the regions' militaries and security forces to provide support to civil authority on environmental issues that threaten regional stability, or national interests."[55] In executing this mission, USSOUTHCOM's vision is "A regional program of military to military engagement on environmental issues that cooperates with appropriate interagency, NGO, PVO and international organizations. The program will create and further develop the capacity of the region's militaries to support the civil authority, address environmental problems that could threaten national security, and promote regional stability and international cooperation. Effective cooperation will be facilitated by drawing the region's militaries together in part through open source cooperative data sharing networks."[56]

Within the framework of the mission and vision, USSOUTHCOM developed strategic aims and operational objectives to focus their efforts. The strategic aims follow:

- Sustain, Strengthen and Expand Multilateral Security Cooperation with Security Forces in the Region.
- Assist in Development of Roles and Missions and Appropriate Modernization of Regional Security Forces.
- Promote and Support Respect for Human Rights and the Environment, and Adherence to the Rule of Law.[57]

The operational objectives further refine USSOUTHCOM's efforts.

- Defense/security leaders of regional nations, protectorates, and security organizations are supportive of multilateral responses.
- Security forces' roles and missions support responses to legitimate national, transnational and multilateral challenges.
- Security forces organized, trained and equipped to effectively respond to legitimate national, transnational and multinational challenges.
- Security forces appropriately plan for and control impacts of operations on the environment.[58]

The Military Role in Environmental Security. Given the U.S. perspective on the military instrument of power and USSOUTHCOM's stated relationship with Latin America, I will now present three arguments found in literature for the military's role in environmental security.

Argument for No Military Role in Environmental Security. The first argument is for no military role, rather that the national security definition should remain military-based and the military should stick to what it does best and for which it was created--warfighting. According to Geoffrey and David Dabelko, "Some observers have objected to increasing the military's role in humanitarian missions, claiming the armed forces are not trained for these duties. The opportunity costs for executing these additional assignments are seen as full preparedness for what is perceived to be the military's primary mission: war-fighting. The same logic is also applied to countering

environmental threats. The conflictual basis of national security makes the instruments designed to safeguard the state inappropriate for addressing the many environmental problems that ignore national borders and therefore require cooperative approaches."[59] According to this argument, the military, as an institution, is the incorrect instrument to apply to environmental problems. The military is, by nature, secretive. Conversely, openness and cooperation are required to solve most environmental problems. Additionally, many times it is the military activities themselves that cause environmental damage, casting the military in the "problem-causing" vice the "problem-solving" category.

This argument is supported by foreign officers during an October 1999 workshop sponsored by the Center for Strategic Leadership (Army War College). During the workshop, the most common environmental threats identified by foreign officers were water issues and land degradation. "Overall, the group did not believe the U.S. armed forces had a role in these regional environmental threats, and that country sovereignty was very important. The officer group saw the U.S. military as a strong provider of conference support, joint exercises, natural disaster assistance, and education. This perception may be based solely on the premise that the primary mission of the military is war fighting, with little technical expertise in environmental security."[60]

Argument for Limited Military Role in Environmental Security. The second argument is for the military to have a limited role in environmental security. Jeff Stark and others at the North-South Center espouse the view that, "Not every security problem has a military solution. This is particularly true of environmentally derived conflict. As these studies show, solutions tend to lie outside the purview of military action, involving,

in the first instance, steps to mitigate or manage environmental threats before they unhinge society or lead to international conflict. Progress is also likely to involve the articulation of new, effective growth strategies. That being said, there do remain potential military components to the management of certain environmentally derived security risks. One obvious example: National or multinational maritime patrols that have as their mission, or one of several missions, oversight of fisheries and maritime pollution control."[61] Stark adds that, "Projects in support of infrastructure and disaster relief are also logical areas for military involvement."[62]

Ambassador Frank McNeil explains his perspective on the role of the military in environmental security as well as why the military is useful in engagement activities such as disaster relief.

> Not every security problem has a military solution. This is particularly true of non-traditional security concerns. In the abstract, one may talk about the environment as a subset of Operations Other Than War (OOTW in military jargon) – in itself still a subject of controversy. In fact, however, there is no consensus among security specialists or environmentalists about what, if any, role in environmental security the military should play except that it is likely to be limited.
>
> In the Western Hemisphere, the United States has special incentives to hew to the principle of economy of force, given the demands for force structure from the latent threat of major regional conflicts in Korea and the Middle East and the commitment of forces in the Balkans. This is reinforced by reciprocal Latin American concerns, deeply rooted in history, about North American intervention. Many Latin Americans also want to constrain the powers of their own militaries, both to forestall the return of militarism and to husband scarce resources for development, which remains for most Latin American and Caribbean nations the top item on their agendas.
>
> In sum, the uses of the military in Latin America, absent a case of naked aggression that invokes treaty obligations, such as the Rio Treaty, are likely to be limited to those that fall under the rubric of 'constructive engagement.' That is not to say, as environmental purists argue, that there is no role for the military, but rather that the U.S. military will work within a larger framework, as it does today in disaster relief, where the U.S.

> Southern Command (SOUTHCOM) works hand in hand with civilian disaster relief specialists from the U.S. Agency for International Development (USAID)'s Office of Foreign Disaster Assistance (OFDA) in Latin America.[63]

Argument for Considerable Military Role in Environmental Security. The third argument is that the military can play a considerable role in environmental security. This argument is based on the information presented in Chapters 2 and 3 on the relationship between conflict, population growth, environmental degradation/resource scarcity and state security; the general, all-encompassing capability required of the military by the NSS and NMS; and the strategy of engagement described in the NSS and supported by the NMS.

Under the NMS, the military is committed to whatever it is called upon to do, responding "to crises across the full range of military operations, from humanitarian assistance to fighting and winning major theater wars (MTW), and conducting concurrent smaller-scale contingencies."[64] This includes actions other than waging wars.

> In all cases, the commitment of US forces must be based on the importance of the US interests involved, the potential risks to American troops, and the appropriateness of the military mission.
>
> Throughout our history, America's Armed Forces have responded to a variety of national needs other than waging wars. The security environment we face includes threats to our country and to our interests that are not 'war' in the classical sense, and yet may call for military forces. Terrorism, weapons of mass destruction (WMD), illegal drug-trafficking, and other threats at home or abroad may exceed the capacity of other agencies and require the use of military forces, depending upon applicable law, the direction of the NCA, and the national interest involved. In addition, military resources will continue to support civil authorities in executing missions such as civil works, disaster relief, and domestic crises.[65]

According to the NMS, the military must be globally engaged. U.S. leadership and extensive involvement is necessary to minimize world threats and protect U.S. interests

including those at risk from environmental issues. "The strategic environment facing us is complex, dynamic, and uncertain. If the United States were to withdraw from international commitments, forsake its leadership responsibilities, or relinquish military superiority, the world would become more dangerous and the threats to US interests would increase. It is in this environment that US Armed Forces must carry out their tasks to protect America and its interests."[66]

I found two sources of research that applied the engagement strategy to the role of the military in environmental security—one by Lieutenant Colonel Rensema and the other by Colonel Alan Moloff.

According to Rensema, one avenue of engagement found in research is "military-to-military relationships."

> The U.S. military engages most effectively in military to military (mil-to-mil) relationships. In many countries, the military is the only strong agency of the government. In such cases, when we employ mil-to-mil assistance, communications and coordination may have greater impact on advancing democratization in the subject country.
>
> Engaging in mil-to-mil relationships and providing our environmental ethic as part of our military doctrine may reduce obstacles and enhance further environmental discourse. Military forces could provide the creditability and support necessary to implement a proactive environmental ethic, which supports new democracies.[67]

But, Colonel Rensema argues that the U.S. military is not yet ready to incorporate the environmental ethic into our military-to-military relationships. Although certain capabilities exist, to totally incorporate environmental security measures into the military culture requires a learning curve and doctrine.

> Fully integrating environmental security into MOOTW [military operations other than war] won't be successful until challenges in doctrine, training and awareness are overcome. As previously discussed, doctrine at the international and national level is limited in providing guidance necessary for efficient environmental security engagement

> missions. Until foreign leadership (both from allies and new democratic countries) is educated in environmental security and its impacts, the challenge will always exist of increased tension and possible conflict due to environmental degradation caused by either man or nature. The United States can play a significant role if all engagement efforts are coordinated and focused on a common goal versus programs being initiated in a piecemeal fashion. Some successes have been realized through cooperative efforts among different agencies that leverage both resources and people. Overcoming these challenges and implementing such a coordinated engagement strategy will ensure success in achieving the goals of the National Security Strategy.[68]

If the U.S. leaders choose to direct the military into this type of operation, Rensema recommends the reserves as the force of choice. "The reserve component is the most appropriate force to support this [environmental] engagement strategy because of the unique capabilities inherent to its service members….*Members of the reserve component, unlike members of the active component, have their feet comfortably in both the military and civilian camps.* Specifically, the reserve component has the military experience, the community association, and the civilian technical occupational diversity to meet any type of challenge in the environmental security arena." (italics in original)[69]

Colonel Alan Moloff researched environmental security in Central Command. He concluded that the primary function of the military in environmental security issues is constructive engagement. "Many military personnel often have a negative or distorted view of environmental issues and activities based on inaccurate information and minimal experience relating primarily to training restrictions and base operations. In light of the larger picture presented here, however, it is clear that environmental issues need to be viewed as resource issues, challenges and opportunities for constructive engagement."[70]

Moloff argues that the benefits of engagement activities include possibly preventing environmental issues from becoming threats to the U.S., fostering professional relationships with senior military and civilian leaders, allowing the U.S. to perform

engagement activities in a non-threatening or non-aggressive manner, possibly allowing for bilateral or multilateral engagement where traditional military training is inappropriate, and enhancing the image of the U.S. and her military among the populace, senior military and civilian leadership of the partner nation/region.[71]

Lastly, Moloff says that while working this constructive engagement, the military should partner with other U.S. departments and agencies.

> These other sources could provide individuals trained in the many disciplines that interact in the environmental security arena and resources for the engagement mission. Many of these departments and agencies practice environmentally related skills on a daily basis as part of their performance of engagement-type missions in support of U.S. strategic objectives.
>
> For example, within the Department of State (DOS) the U.S. Agency for International Development (USAID) performs a number of engagement missions throughout the AOR and the world. These focus on numerous environmentally related issues including agriculture, potable water, public health, technology and economic development….
>
> Additionally, depending on the specific objectives, there are U.S. and internationally based NGOs and PVOs that can assist, augment and facilitate specific engagement missions. Many of these organizations would be receptive to conducting 'joint' activities with the military, as the military can offer technical and logistical support that is often beyond the capabilities of these organizations.[72]

Once the engagement relationships are established, the U.S. military has the opportunity to share U.S. technology with their Latin American counterparts. The amount of environmentally-applicable technology available generated by U.S. ingenuity is nearly endless. I want to mention only a few possibilities: intelligence data, sensor technology, sustainable waste management modeling, and alternative power sources.

Use of Intelligence Data for Environmental Needs. The military has certain capabilities that do not exist in the private sector, or that do not exist to the same degree as in the military. For example, the U.S. military has intelligence assets used to assist

senior decision-makers develop and implement strategic and tactical objectives. Because of the quality of the data captured by these assets, and because of the long collection periods, the value of this data to the environmental community is enormous. The possibility of using imagery data for environmental research was explored by Scott Pace, Kevin M. O'Connell and Beth E. Lachman in a 1997 RAND Corporation report. These researchers argue,

> The end of the cold war and changing national security threats have sparked major debates on the purpose, roles, and functions of the U.S. intelligence community. At the same time, increasing interest in the global environment has raised awareness of how environmental hazards, including natural disasters, can threaten the security of the United States. Environmental changes from natural and man-made causes can foster conflict over scarce resources, create large-scale human migrations, and destabilize foreign governments. These changes may be rapid, as with nuclear accidents, or gradual, as with global warming. Global environmental monitoring could more effectively manage limited natural resources and environmental problems….
>
> Intelligence systems by definition collect foreign intelligence—information on events and activities external to the United States that are of interest to U.S. national security. A natural extension would be to ask how such systems might be used in support of civil agency missions. Sample civil government interests include mapping, natural disasters, (e.g., earthquakes, volcanoes, floods, hurricanes, forest fires), search and rescue, natural resource management and preservation (e.g., forests, wetlands, grazing, agriculture, biodiversity), and regulatory violations (e.g., toxic releases, oil spills, waste water discharges). Each of these interests could benefit from current and historical imagery and other types of monitoring data. Moreover, civil agency environmental missions increasingly have international components, such as tracking pollution or coordinating disaster relief. Thus, the use of intelligence data or information derived from intelligence data can support international cooperation.[73]

The attraction of this concept is easy to understand. Theoretically, if the data is already being collected, it could also be used for civil purposes at a relatively low cost. Additionally, the value of the unique data can substantially advance the scientific understanding of the environment.

But, there are questions surrounding the issue. First, there is the budget and funding problem. If government funding is used for environmental research, is government regulation to follow? Additionally, the issue of classification exists. If the data cannot be declassified, how will the body of scientists be allowed to use it for research? Thirdly, the data must be read, which requires money for training. Lastly, will the government provision of data usurp the private industry's market in this area?[74]

The answers to these questions are not clear to any of the stakeholders involved. Some progress has been made, however, on current imagery. Private industry has identified a market for precision imagery, both in, and out of, the environmental community. The U.S. government recognizes this market and has "licensed a Colorado firm to sell extremely high-resolution satellite photographs to its customers around the world, effectively relinquishing intelligence agencies' monopoly on precision imagery from space."[75] The decision was made after a year-long policy review by the White House, Pentagon, State Department and intelligence community. "Allowing the sale of photographs that are taken from more than 400 miles in space, yet clearly show objects as small as 19 inches in length, represents a major development for the commercial satellite industry and the national security community. Starting in 2004 … everyone from urban planners and environmental groups to foreign governments and extremists may have access to 'half-meter resolution' images of cities, airports and military bases around the globe, down to what type of radar is mounted on what model tank."[76]

Although licensing private firms to sell imagery can help environmental researchers collect current data, comparing that data with the past to determine progress or trends

would not be possible unless the government releases old imagery. In that vein, the RAND article submits the following recommendations:

- Given the many sensitivities surrounding the use of intelligence data for environmental purposes, specific policy guidance should be provided on what the government will not do, as well as what it might do.
- The Administration should promote cooperation on environmental research and management at multiple levels—interagency, international, the private sector, and state and local governments.
- The intelligence community should become a regular participant in interagency environmental fora such as the National Science and Technology Council (NTSC) Committee on Environment and Natural Resources.
- The Administration should seek a greater diversity of funding for civil environmental applications of intelligence data.
- The use of intelligence data for civil environmental applications should become a potential joint mission for the DoD and the intelligence community.
- Greater effort should be expended on declassifying environmental datasets held by the intelligence community and the Department of Defense.
- The intelligence community should initiate a dialog with industry interests that may be affected by more open access to intelligence data for environmental uses.[77]

Lastly, the article cautions, "Presidential direction and bipartisan congressional support are necessary for the sustained use of intelligence data for environmental purposes. Any increased environmental monitoring must not give even the appearance of 'domestic spying' or the taking on of law enforcement functions. Political support for even experimental application of intelligence data could quickly vanish."[78] Considering those cautions, some purposes, such as natural disaster monitoring for public safety, would, most likely, be better received than others.

Sensor Technology. Related to intelligence gathering, sensor technology also has potentially dual military/environmental benefits. This topic was researched by Robert Jarrett and William Forester of the Army Environmental Policy Institute. However, the document only reached the draft stage.

The military functions performed by this technology include mine detection and remote sensing, either from low-flying aircraft or satellites.

> Several electromagnetic bands were developed for and are used by military organizations to image surface and near surface conditions for both intelligence gathering and battlefield management. Civilian and scientific managerial agencies have used the same technologies for earth resource monitoring….
>
> Natural and artificial infra-red radiation, visible light and reflected radar receive wide use for providing images of conditions on earth; images on space and time scales not economically practical any other way. Imaging and interpretation technologies grow from the military requirements.
>
> Satellites and aircraft carry a variety of sensing devices designed to react to wavelengths of energy characteristic of many vegetative, atmospheric, geologic, mineralogic, hydrologic and topographic conditions and compositions. Some can discriminate dimensions of a few meters from great altitudes. Super computer processing permits integrating and correlating data from more than one phenomenon and sensing system to provide richly detailed information regarding environmental factors, damage, trends and improvements.[79]

Sustainable Waste Management. The United States has a history of creativity and ingenuity. These talents extend into the environmental world as well. I present the next two sections as examples of work conducted by RAND that could be shared with Latin American countries, possibly via a military-to-military relationship.

In the first report, "Transition to Sustainable Waste Management," Robert J. Lempert and William Schwabe detail a simulation gaming approach to waste management that encourages the concurrent development of supply and demand. The gaming concept is designed to force governments to understand different ways of managing waste and the true social costs of using virgin materials as opposed to recycling.

> This entails reducing subsidies on virgin materials and reflecting the true costs of constructing landfills and incinerators in the tipping fees charged for waste disposal. Governments must also be involved in community

> education programs to encourage higher levels of recycling by consumers. But those in charge of such government programs must be aware that developing sustainable flows of materials in a market economy also requires large-scale private investment. The manufacturers of consumer packaging must have production equipment that can use post-consumer waste, and this investment must be concurrent with the establishment of community recycling programs. If firms invest in new waste-processing equipment, but consumers and municipalities do not produce the requisite waste, the new and expensive capacity will lie idle and discourage future private investment. Alternatively, if consumers and municipalities make great efforts to supply recycled materials, but there is no industrial capacity to utilize them, the pileup of waste will discourage the public faith vital for future efforts.[80]

Although the model used in the game is not applicable to the real world, it is still valuable in that it facilitates cooperative decision making among the players and helps them understand the impact of various policy levers in transitioning to sustainable waste management.[81]

Electric Power Options. Mark Bernstein, Scott Hassell, and Jeff Hagen wrote a RAND research report on electric power options for growth, particularly for developing countries. I already mentioned in Chapter 2 the increasing energy requirement that accompanies population growth. As more GS nations strive to improve their economic status and quality of life for their citizens, generation and transmission of electricity will play a key role in the nation's development. Electricity is important for many reasons—education of women and children, sanitation, clean water, food production, and access to information. In developing countries, the introduction of electricity can also decrease indoor air pollution from burned sources.[82]

Most methods of power production generate pollution, however. "The standard projection shows electric sector [carbon dioxide] CO_2 emissions in developing countries nearly tripling over the next twenty years as a result of investments of approximately $1.7 trillion. This sector already represents 10 percent of global emissions."[83] Developing

nations have an advantage over GN countries when building power plants, though—the GS states can use current technology and processes, thereby avoiding the mistakes made by GN states and the accompanying damage to the environment.

The RAND work is based on five case studies of countries, including Argentina and Brazil. The studies investigated policy and technology choices in the electrical power sector to reduce carbon dioxide and other air emissions while maintaining or improving economic growth.

> The study presents four alternative paths for new power generation that could maintain economic growth and reduce new emissions:…
>
> - Including the costs of electricity delivery—not just generation—makes planning and investment decisions more efficient and makes distributed renewable energy more viable, decreasing CO_2 emissions by up to 2.5 percent;
>
> - Increasing privatization of the electricity sector could reduce CO_2 emissions by up to 1 percent and boost economic benefits by up to 5 percent;
>
> - Using low-emissions technologies—for example, increasing the use of natural gas and renewables—could reduce CO_2 emissions by almost 25 percent while still allowing economic growth; and
>
> - Increasing the efficiency of electricity supply and demand could reduce CO_2 emissions by up to 10 percent.[84]

In addition to the benefits listed above, many others could accompany more effective and efficient power production.

> For example, more cost-effective public investment in electricity supply could allow other public investments to increase (e.g., education, transportation, sanitation, etc.). On the demand side, the provision of a more reliable electricity supply could reduce the private sector's need to purchase backup generation and storage equipment, thereby enabling it to make more profitable investments. In addition, less expensive electricity would benefit all portions of society by increasing savings and investment, which could boost national competitiveness. As the global economy grows and international capital flows increase, developing countries will continue to compete for foreign investment from transnational companies

> and investors. Under these conditions, those countries that can most efficiently use their capital resources to provide reliable, high-quality, low cost electricity may grow faster than others.
>
> Finally, since current decision-making processes typically do not include environmental impacts, continued use of traditional planning methods may miss cost-effective opportunities to reduce local and global emissions, thereby causing significant environmental impacts, diminished public health, lower productivity, increased risk of global climate change, and ultimately, lower economic benefits.[85]

In each of the cases listed above, the opportunity for organizations outside the military to convey the information certainly exists. However, exchanging this type of technological data via mil-to-mil engagement relationships simultaneously enhances the international relationship and advances environmental security.

Conclusion

Chapter 4 covered the strategy and methods employed by the U.S. to exercise political, economic, and military instruments of power in the enhancement of environmental security. In the course of the discussion, three views were presented on the use of the military IOP--no military involvement, limited military involvement, and considerable military involvement. I also mentioned how USSOUTHCOM fit into the U.S. use of the military IOP.

In the next chapter, I will discuss the existing obstacles to USSOUTHCOM's achievement of environmental security.

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73 Scott Pace, Kevin M. O'Connell and Beth E. Lachman, *Using Intelligence Data for Environmental Needs, Balancing National Interests,* RAND Report MR-799-CMS, (RAND, Santa Monica, Calif: RAND 1997), 1-4.

74 Ibid., xi, 5, 12.

75 "U.S. Relaxing Rules on Sale of Satellite Photos," Washington Post, 16 December 2000.

76 Ibid.

77 Pace, O'Connell and Lachman, *Using Intelligence,* (RAND, Santa Monica, Calif: RAND 1997), xii-xii.

78 Ibid., xiii.

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79 Robert E. Jarrett and William H. Forester, "Application of Military Technology to Environmental Clean-Up, (Draft)" (Army Environmental Policy Institute, 25 February 1994), 4.1.4.

80 Robert J. Lempert and William Schwabe, *Transition to Sustainable Waste Management, A Simulation Gaming Approach*, RAND Report MR-183-EAC, (Santa Monica, Calif: RAND, 1993), 2.

81 Ibid., 9.

82 Mark Bernstein, Scott Hassell, Jeff Hagen, et al., *Developing Countries & Global Climate Change, Electric Power Options for Growth*, RAND Report MR-1102-PCT, (RAND, 1999), 5.

83 Ibid., ii.

84 Ibid.

85 Ibid., 7-8.

Chapter 5

Obstacles to USSOUTHCOM Objective Implementation

> *The free peoples of the world look to us for support in maintaining their freedoms….If we falter in our leadership, we may endanger the peace of the world—and we shall certainly endanger the welfare of our own nation.*
>
> —President Harry Truman

Introduction

In the previous chapter, I discussed the instruments of power (IOP) and how USSOUTHCOM fit into the U.S.' use of the military IOP for environmental security. In the course of that discussion, I listed USSOUTHCOM's environmental strategic aims and objectives, as developed within the framework of their mission and vision. The strategic aims follow:

- Sustain, Strengthen and Expand Multilateral Security Cooperation with Security Forces in the Region.
- Assist in Development of Roles and Missions and Appropriate Modernization of Regional Security Forces.
- Promote and Support Respect for Human Rights and the Environment, and Adherence to the Rule of Law.[1]

The operational objectives further refine USSOUTHCOM's efforts.

- Defense/security leaders of regional nations, protectorates, and security organizations are supportive of multilateral responses.
- Security forces' roles and missions support responses to legitimate national, transnational and multilateral challenges.

- Security forces organized, trained and equipped to effectively respond to legitimate national, transnational and multinational challenges.
- Security forces appropriately plan for and control impacts of operations on the environment.[2]

In this chapter, I will discuss the challenges or obstacles existing that may inhibit USSOUTHCOM's achievement of their environmental security objectives as shown on Figure 5 and as described in the first research question, "What are the critical challenges facing the military in executing their role, mission and objectives?"

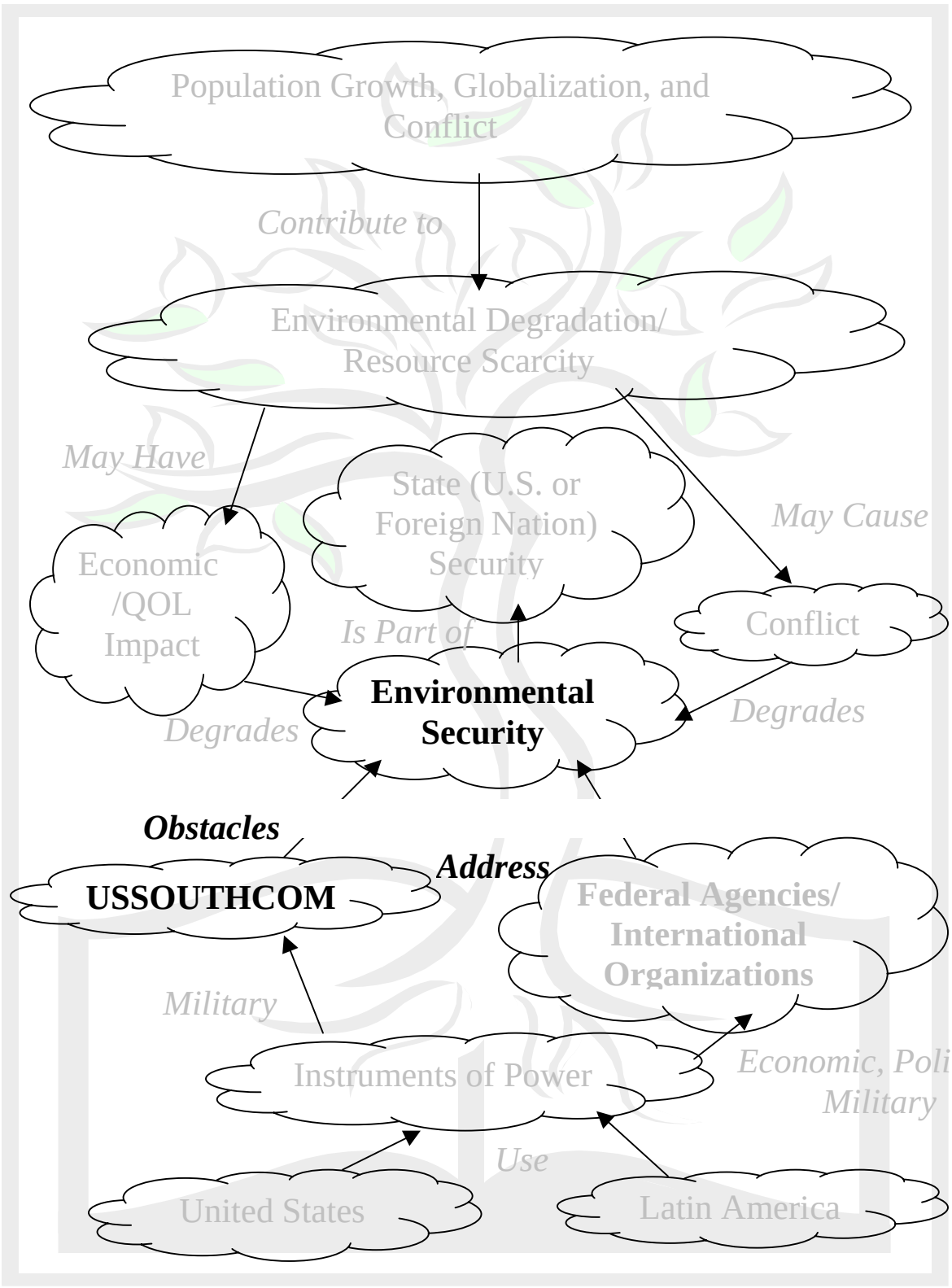

Figure 5. Environmental Security Diagram

USSOUTHCOM Recognized Obstacles

The USSOUTHCOM recognized several challenges exist in the achievement of their stated objectives including sovereignty, poor data, special interests, resource availability, and education of the local population.

First, as described in their Draft Environmental Security Supplement, "Sovereignty is an extremely sensitive issue. No government wishes to have foreign entities impose their will upon it. Individual states wish to be treated with respect for their sovereignty and as full partners, regardless of the level of participation or resources provided."[3] This position is supported by Jeff Stark of the North-South Center. "Although the cornerstone of international environmental diplomacy is the recognition that phenomena such as global warming and ozone depletion know no boundaries, regional sensitivities about national sovereignty are also still acute."[4]

Respecting sovereignty is particularly challenging in the face of environmental degradation, which transcends national borders. Numerous examples exist of the nature and effects of environmental damage that make it difficult to determine specific impacts on the state and its citizens, and to distinguish between internal and external threats. According to Geoffrey and David Dabelko,

> Thus, the traditional hard and fast distinction between internal and external conflict found in realist literature represents a false dichotomy. Analysis of redefining security would suggest that in formulating the theories of conflict, internal and external conflict should be treated more as a continuum than a dichotomy.
>
> These transboundary phenomena challenge the primacy of the sovereign state actor in safeguarding territory, populations and interests. What may be environmental hazards or resource shortages created entirely within one country, can dramatically affect neighboring states. Acid rain and water salinization represent two classic examples of these regional problems. International bodies and non-governmental organizations deserve credit

> not only for bringing the issue to the foreground; their cooperative rather than conflictual *modus operandi* is key to addressing transboundary environmental threats.
>
> On a broader level, global environmental phenomena affect all states to varying degrees. Those states primarily responsible for the problems are often not the ones that must bear the brunt of the damage. Sea-level rise resulting from global warming will hold much higher and less affordable costs for low-lying developing countries than for the developed countries that are currently the majority contributors of greenhouse gases. [italics in original][5]

Secondly in USSOUTHCOM's Draft Environmental Security Supplement, "Poor data is used in many areas to do current assessments, and to measure actual damage, potential destruction, or projected impacts. The U.S. can assist in the establishment, quantification, and dissemination of quality regional environmental data."[6] Third, "Special interests are sources of conflict as they lobby for specific interests, which frequently run counter to environmental efforts at the expense of profits."[7]

Fourth, resource availability: "To accomplish the goals, sources of funding and expertise will be difficult to locate and coordinate and must be used efficiently, avoiding unnecessary requirements and bureaucracy that fail to add value. Cooperating with other organizations is desirable."[8] Jeff Stark emphasizes this point as well.

> A flurry of agreements have been reached in the last few years, including the March 1989 Declaration of Brasilia, the May 1989 Amazon Declaration, the December 1989 Central American Agreement for the Protection of the Environment, the October 1990 Action Plan for the Environment in Latin America and the Caribbean, the March 1991 Tlatelolco Platform, and the June 1991 Inter-American program of Action for Environmental Protection—all capped off by the June 1992 World Conference on Environment and Development in Rio de Janeiro. However, the resources need to implement these agreements (which repeatedly bring to the fore the intimate link between poverty and environmental degradation) are often not at hand, and the accompanying debate over capital and technology transfers from North to South is not likely to subside.[9]

Lastly in USSOUTHCOM's Draft Supplement, "Education of the local population is critical to any successful environmental engagement effort and activity. Engagement activities must be carefully planned, weighed for cultural sensitivity, and successfully communicated in advance of their implementation to ensure understanding and acceptance by the public."[10]

Additional Obstacles

In addition to the challenges identified by USSOUTHCOM, other obstacles were found in research literature. Some provide opportunities that are within the power of USSOUTHCOM to work, many in conjunction with other organizations. Others cannot be addressed by USSOUTHCOM at all and are simply presented for the reader to know they exist.

The obstacles found in literature can be divided into four basic areas—(1) those originating inside Latin America, (2) those originating inside the U.S., (3) obstacles emerging from the relationship between the U.S. and Latin America, and (4) those that fall outside the direct two-region relationship.

Inside Latin America

Within Latin America, certain conditions exist that inhibit USSOUTHCOM's implementation of environmental security. These conditions include economic development (poverty, importance of economic growth compared to environmental enhancement, and economic equality), competing costs with the state military, and perception of the host nation and U.S. militaries.

Economic Development. According to Eveline Herfkens, Hide F. Johnson, Clare Short, and Heidemarie Wieczorek-Zeul, the Dutch, Norwegian, British and German ministers for development, 1999, "The great moral problem of our time is poverty….It can and must be eradicated….There is no need more urgent, no cause more noble."[11] As applied to the topic of this paper, individual and state poverty is an overarching problem that can negatively impact the capability of a country to implement an environmental security program. "Poverty has become one of the decisive factors of sustainable development, which sets out the need to invest in human capital and in infrastructures allowing … opportunities for personal improvement."[12] The bottom line is, without sufficient funds, environmental programs cannot be implemented. Hence, poverty in Latin America is also a problem that must be addressed and understood by the U.S.

Because of the widespread poverty, economic growth ranks higher on Latin American priority lists than environmental protection.[13] In the absence of a significant military threat, the value of economic growth may even rank higher on a country's agenda than military security.[14] Governments are more concerned with economic progress, and poor people are more worried about how to provide for their families and where their next meal is coming from, than the toll their actions are taking on the Earth.[15]

Additionally, a large economic gap exists between rich and poor within the Latin American countries. "Economic growth is not a new phenomenon in Latin America; broadly shared economic growth would be. Studies often have shown political turmoil to be correlated strongly with periods of uneven economic growth—to which the evidence of the February 1992 coup attempt in Venezuela may be added. Thus, the link between

aggregate levels of economic growth and security is tenuous and uncertain, with the former necessary but not sufficient for the latter."[16]

Competing Costs with the State Military. I have already mentioned in Chapter 2 the enormous costs of maintaining a military and conducting a war. This cost directly competes with environmental infrastructure protection investments such as potable water supply, sewage disposal, etc., and human security investments in people like health care and education.[17] "In the Global South military spending typically exceeds expenditures on health and education."[18] This is the "guns versus butter" or, "guns versus growth" tradeoff.

Those most burdened by the costs of defense and most in need of economic development include a disproportionate share of countries experiencing civil or international war or security threats. These conflicts are flourishing with the end of the Soviet-American rivalry and its associated security interest and economic aid to GS countries. "The Global South has become the world's killing fields; more than 90 percent of the inter- and intrastate conflicts and 90 percent of the casualties in the past half-century occurred within it."[19] Fighting these wars, whether ethnic, religious, drug-related, or from an external hegemon, is expensive. Yet, this cost must be borne by the involved states at the expense of other investments like economic development and environmental security, until stability and peace is brought to the region. Also, some countries are simply eager to build their arsenals, regardless of cost to, or impact on, the people. "Impoverished states facing ethnic, religious, or tribal strife at home are quite prepared to sacrifice expenditures for economic development in order to acquire weapons"[20]

Perception of the Host Nation and U.S. Military. The U.S. strategy of engagement incorporates the military as a positive role model. However, according to Colonel Glenn Weidner, a perception exists in Latin America that U.S. military motives are only self-serving and have little regard for the Latin American country and its people.

> Capitalizing on the opportunity presented by the overwhelming transition to democratic rule which has characterized the region, the U.S. has structured a strategy of engagement with the nations of Latin America to meet these challenges through broad cooperation in both civilian and military sectors. The respective militaries are treated as positive institutions within society, with the potential for contributing to both external and internal security requirements as well as to nation-building missions in coordination with civilian ministries. In pursuing this strategy, the U.S. continues to emphasize the use of bilateral programs while promoting the ideal of multilateralism via the OAS and the Presidential Summit/Defense Ministerial processes. This strategy becomes problematic both internationally and domestically with respect to those countries in which the militaries have amassed records of serious human rights abuses or continue to exert a disproportionate influence in political affairs and economic activity. This can contribute to the impression that the U.S. is propping up some Latin American militaries which do not appear to have turned their backs on past unsavory roles in the dynamics of civil society in order to advance her traditional security interests.[21]

Inside the United States

Certain conditions exist in the U.S. that also inhibit the implementation of a joint U.S./Latin American environmental security plan. These conditions include: difficulty formulating foreign policy after the end of the Cold War; conflicting thoughts on the National Security Strategy; limited political persuasion; and the internal view of the military's role in world events.

Foreign Policy. Developing and executing foreign policy has been more of a challenge for the U.S. since the end of the Cold War. Because foreign policy dictates the U.S./foreign nation relationship, this challenge also affects the ability of USSOUTHCOM to interact with Latin America and implement an environmental security strategy. This

post-Cold War challenge was described by James Scott in his book, *After the End, Making U.S. Foreign Policy in the Post-Cold War World.*

> In a number of respects, the cold war simplified U.S. foreign policy and the process by which it was formulated. Part of the explanation for this rests in the 'shortcuts' provided by the cold war to U.S. foreign policy makers: they made it clearer what price to pay and when to pay it. Contending with a complex world was made easier by a 'cold war consensus,' which narrowed and simplified both problem interpretation and policy prescription. This consensus—a 'set of beliefs, values, and premises about America's role in the world' [Richard Melanson] – included basic agreement on the nature of the world (bipolar), the nature of conflict in the world (zero-sum between the United States and the Soviet Union), the U.S. role in the world (leadership), and broad U.S. foreign policy (containment of the Soviet Union and communism and promotion of an open, multilateral economy). During the period in which this consensus was strongest, debate in the United States tended to be more about narrow policy tactics and less about broader strategy or purposes.[22]

> The post-cold war world is, at its heart, everything that the cold war was not. Threat is more ambiguous, priorities are more problematic, and policy making is more fragmented and decentralized. The constraints and opportunities of the post-cold war world, the attitudes and actions of the American public and other nongovernmental actors, and the role of influence of institutional actors all point to a more varied and less coherent foreign policy-making environment in which role, goals, and policies are harder to determine, develop, apply, and sustain. Compared to the cold war years, the post-cold war dissensus therefore means less clarity for problems, goals, policies, and instruments; less coherence in process; and expanded cross-pressures from the societal context, owing to the expansion of group pressure and the ambivalence of the American public. This policy of democratization and decentralization can act as brakes on ill-conceived policy and broaden the debate to include more interests and wider perspectives so that policy emerging from this environment is likely to be more sustainable and possess greater legitimacy. However, they also slow down the process and make it more difficult to produce policy. They seem to assure politicization, bargaining, persuasion, and to increase the likelihood of compromise, stalemate, conflict, and policy contradictions. In the fragmented, pluralist U.S. environment, consensus is necessary for coherent, sustained, White House-led foreign policy. Consensus, however, rests on clarity of threat, purpose, and interest, making it a rare commodity in the post-cold war world. This is the era of interbranch policy making.[23]

In addition to the Cold War ending, there are a number of other reasons for the foreign policy confusion over the last ten years including relative change in the military and economic IOPs; sovereignty yielding to more globalization; and congressional, public opinion, and interest group influence.

First, since the demise of the Soviet Union, a relative decrease in the role of military power in favor of economic power has occurred. "For the United States and other great powers, the end of the cold war and the disappearance of the Soviet threat effectively closes, at least for now, the era of the predominance of military power and security issues. Together, the diffusion and changing nature of power make its exercise more complex and less coercive and result in a greater significance for economic power. This shift may precipitate a period in which the most powerful states are chiefly concerned with economic prosperity and growth."[24]

In the midst of this change, the U.S. seems to have a monopoly on true military strength, while economic power is spread among many states. "Since the end of the cold war, its bipolar distribution of military and other types of power has yielded to a world with many different types of power more widely distributed among many actors. Military power seems to be unipolar, concentrated in the United States. Economic power, in contrast, is diffusing among more states—especially former U.S. allies such as Japan and Western Europe and rising powers such as China and the newly industrializing economies (NIES)—and nonstate actors (international organizations, transnational corporations, and nongovernmental organizations)."[25]

Second, the changing world also brought about less sovereignty and more globalization, and an increasing number of nonstate actors involved in international

relations. "Involving economic, social, ecological, and military dimensions, interdependence creates a web of linkages between international institutions, governments, economies, and societies that bind them together and reduce national autonomy."[26]

Third, since the end of the Cold War, Congress, the public, and interest groups have become more involved in foreign policy. Congressionally, "Whether measured by the 29 percent drop in compliant behaviors compared to the 1950-1982 period or by the illustrations from recent congressional legislation, appropriations, confirmations and ratifications, oversight and institutional control, or other informal policy-making activities, the 1992-95 period has seen an increased willingness on the part of legislators to challenge both the administration's foreign policy agenda and its preferred means of accomplishing that agenda."[27]

Part of the reason for more congressional involvement is the lines between what is foreign and what is domestic are becoming more blurred, causing Congress to challenge presidential reign of foreign policy. "Growing interdependence in international politics means more intermestic policies here at home. Presidents will call them foreign policy issues, but members of Congress will react to them based on their domestic consequences. Further, the lack of a foreign policy consensus in society, the phenomenon of divided government, the increasingly ideological and partisan nature of foreign and defense policy debates on Capitol Hill, the decreasing influence of standing committees and the increasing influence of party leaders on both sides of the aisle combine to present a formidable challenge to presidents. Post-cold war presidents should

fasten their seat belts securely; foreign and defense policy making is likely to be an increasingly bumpy ride."[28]

Public opinion seems to be a more influential factor as well, despite the historic argument against public involvement. According to this argument, public opinion is too volatile to create a strong basis for foreign policy, and the mere nature of strategy creation—the secrecy, speed, flexibility, and the ability to act on the basis of intelligence that cannot be shared with the public—render the public useless in foreign policy creation.

Yet, today's population is less inclined to simply trust the President with many important foreign policy issues, and it may be difficult to exclude them.

> This [U.S. foreign policy] agenda will probably include but not be limited to a number of issues on which the public is likely to have strong views and on which the thesis that 'the president knows best' may appear less compelling than, for example, during World War II and the cold war. Among these are such economic and social issues as trade and protectionism, refugees and immigration, drug trafficking, and environmental problems, These are also concerns toward which public attention is likely to be directed….
>
> It is also clear, moreover, that post-cold war foreign policy leaders will not have the luxury of focusing all of their energies on international economic, social, and environmental issues, if only because of the persistence of ethnic, racial, religious, nationalist, and tribal conflicts in many regions.[29]

The USSOUTHCOM challenges mentioned earlier in this chapter included interest groups. These interest groups and the media are generating greater influence on foreign policy. For example, the media's airing of death and starvation in Ethiopia and Somalia in the 1980s and 1990s drove a U.S. response (military for Somalia). The media even met the American forces as they came ashore.[30] Additionally, from an environmental perspective, "nongovernmental organizations and interest groups were particularly vital in shaping NAFTA policy. The Sierra Club, the National Wildlife Federation, the

Natural Resources Defense Council, and the Environmental Defense Fund all participated in the policy-making process."[31]

According to Scott, all of the factors mentioned above contributed to the failure of U.S.' attempts to create a foreign policy based on multilateralism, as well as one incorporating sustainable development in the 1990s.

> For example, this volume suggests that attempts to refocus U.S. foreign policy (e.g., to promote democracy and pursue assertive multilateralism) have largely failed; even as policy makers took up these efforts, their attempts to forge a strategy to face the post-cold war world fell short….Overall, the authors suggest that there has been a shift away from the cold war and post-Vietnam era paradigms, but an as-yet-incomplete shift to a post cold war paradigm.
>
> The contributors to this volume describe an inability (thus far) to successfully adapt U.S. foreign policies and institutions to changing international features. The struggles to reorient U.S. foreign policy to better address the international politics of peace and prosperity, dependency and transition, and turmoil and development can, perhaps, be understood as a consequence of other 'adaptations' in the foreign policymaking arena that have been triggered in the wake of the cold war.[32]

Without a firm direction, it appears the U.S. foreign policy strategy will continue to be reactionary, not visionary, causing considerable difficulty for the Department of Defense and USSOUTHCOM to implement their environmental security strategy.

> In the years to come, the liberation of U.S. foreign policy from the protracted political impasse of the post-cold war era will likely require the restoration of consensus regarding the country's appropriate role in foreign affairs. In the absence of such a consensus, the likelihood remains that U.S. policy will continue to be driven by crises overseas—whether in southern Europe, the Middle East, central Africa, or Latin America. In the immediate aftermath of the cold war the United States was forced to respond defensively, and often inconsistently, to crises in these regions, which diverted attention from long-term problems such as the need for sustainable development. Given the volatile nature of the international system in the late 1990s and the continuing clash over an appropriate U.S. grand strategy, this pattern will likely continue. If so, it would be a logical, if not reassuring, outcome of the constitution's 'invitation to struggle' over U.S. foreign policy.[33]

Conflicting Thoughts on National Security Strategy. Dissention also exists within the U.S. on whether and how to engage with Latin America and the rest of the world from a National Security Strategy perspective.

> Three schools of thought about America's role in global affairs continue to divide US policymakers at the start of the new millennium:
>
> > Neo-isolationist wants the U.S. to deal only with threats to America's physical security, political independence, and domestic liberty. They find no such threats at present, and therefore argue that the U.S. should let other powers and regional balances of power take care of all the world's woes. Realists such as Henry Kissinger want the U.S. to continue to be the holder of the world balance of power; the arbiter of the main regional power groups, and the watchdog against all potential imperialistic trouble-makers. Internationalists want a greater role for multilateral institutions and more emphasis on human needs and rights, the environment and democracy (Hoffmann 1992, 59)….
>
> If the past provides a guide to the future, U.S. National Security Policy in the first decade of the twenty-first century is likely to continue to display a realpolitik face at the same time that it speaks in the diplomatic language of the U.S. liberal legacy. While displaying a preference for selective engagement on the issues and trouble spots where the US chooses to become involved, the US will isolationistically avoid intervention where the costs and risks are high (Art 1999).[34]

In a 1999 campaign speech, President George W. Bush hinted at a realpolitik strategy with a strong military. This logic requires an overwhelming military power to pursue U.S. national interests and manage national security threats. "We live in a dangerous world, and the next president has to reinvigorate the military. You need a sharpened sword to deal in the dangerous world of the 21st century."[35]

"Viewed in light of this realpolitik definition of its evolving defense doctrines, the United States is committed to relying heavily on military might while attempting to build liberal ideals into the definition of its goals. This kind of 'democratic realism' follows the U.S. engagement and enlargement strategy the Clinton Doctrine outlines to use U.S.

power for humanitarian interventions throughout the world and to enlarge community liberal democracies. The Clinton Doctrine did not call for the United States to take on every burden throughout the world, but 'to engage in some places and pass on others.'"[36]

Limited Political Capabilities. Despite her obvious power, the U.S. has limited political power to influence nations in the Western Hemisphere. Military interventions and political support against Latin America have led to this position.

> The exhaustion of the inter-American security system (and for many the decline in U.S. hegemony) became apparent in 1979 when the United States was unsuccessful in its efforts to mobilize an OAS peacekeeping force to keep the Sandinistas from ascending to power in post-Somoza Nicaragua. More telling was the breach in inter-American solidarity opened up by U.S. support of Great Britain in the Falklands/Malvinas war, which stood in stark contrast to a 17-0 OAS vote in support of Argentina and shattered the pretensions of hemispheric unity long embodied in the Monroe Doctrine.
>
> When Latin American fears over possible U.S. armed intervention in Central America peaked in the early to mid-1980s, Mexico, Venezuela, Columbia, and Panama acted outside the prescribed inter-American structure and formed the Contadora Group, which sought a negotiated end to regional conflicts. Although the United States resisted such independent efforts, the Arias Plan which followed displaced preferred U.S. strategies in Central America, thereby signaling new levels of organizational capacity and political strength in Latin America as well as the diminished coercive powers of the United States. And notwithstanding the notable lack of sympathy for the regime of General Manuel Noriega, the December 1989 U.S. invasion of Panama and subsequent seizing of the Panamanian leader reinforced Latin American misgivings about the U.S. unilateralism and led to a motion in the OAS condemning the invasion—with the United States casting the lone dissenting vote. As a result of these many trials and tribulations—in addition to the failure of the inter-American system to address the security implications of the foreign debt crisis—by the end of the 1980s, many Latin American observers came to believe, in the words of scholar and diplomat Heraldo Mun oz, 'the system provided security for the United States, but produced insecurity for Latin America.'[37]

View of the U.S. Military. The U.S. military role in world events has expanded over the past 10 years, covering humanitarian, famine, and natural disaster relief,

peacekeeping, drug interdiction, and no-fly zone enforcement. Employing the military in this manner rubs against the grain of some U.S. leaders. "Human rights groups and some members of Congress believe the military already exercises too much foreign influence and that increased reliance on the Pentagon to solve complex problems is causing civilian agencies to atrophy. Conservatives charge that the diplomatic and nation-building missions drain resources and dull the armed services' ability to fight and win wars."[38]

Perception problems exist within the military as well. The U.S. military was taught and trained to fight wars. But, instead of fighting, soldiers, sailors, marines and airmen are sent to places like Haiti, Somalia, and Bosnia for peacekeeping and humanitarian purposes. Operations tempo is at all-time highs, and understanding is lacking at the individual level. This confusion about expanded roles, combined with a perceived lack of clear purpose, results in lower morale.[39]

Relationship Between the Two Regions

The relationship between the U.S. and Latin America does not inherently lend itself to joint, cooperative efforts. Instead, like the Global North and Global South, the contest has historically been "a politics of mutual suspicion and struggle."[40] Reasons for this include differences in objectives on free trade (mentioned in the last chapter), North/South economic inequality, resentment over previous armed interdiction and perceived imperialism, economic inequality, and disagreement over the environment. "The Latin American countries reside geographically near a much stronger power, the United States, whose capabilities are in part a function of geophysical resources. Latin America has long been the object of studied interest and frequent intervention by the giant to the north. The U.S. presence provoked a bitter response among Latin American

countries for many decades because they felt they could not compete on an equal footing with the U.S. economy and military powerhouse. Their foreign policy of resistance to so-called Yankee imperialism was driven by their vulnerable circumstances."[41]

North/South Economic Inequality. A significant economic gap exists between the developed world and the developing world. This gap is particularly noticeable since the end of the Cold War. "This *stratification* reinforces the dominant place of the members of the developed world (the liberal democratic community). While the developed world enjoys increasing security and prosperity (at least in aggregate terms), much of the developing world is mired in violence and economic stagnation. There is, then, a continually widening gap between the rich and poor of the international system." (italics in original)[42]

This economic inequality can cause mistrust and conflict. "Given the grim future of much of the Global South, 'the greatest challenge global society faces today is preventing this {economic} fault line [separating the Global North and Global South] from erupting into a world-shaking crisis.' (Kennedy 1994)"[43] The circumstance is exacerbated by a perceived lack of commitment from the GN for resources felt deserved by the GS in repayment for years of colonialism and imperial rule.[44] One example of this is the peace dividend at the end of the Cold War. Expenditures on weapons were cut, but the dividends were not invested in the Global South's economic development.[45]

Imperialism and Intervention. Previous U.S. policies and military interventions strained U.S./Latin American relations. "The pronounced role of the U.S. military is criticized in parts of the world—especially the Americas, Europe, the Philippines and Japan—where resentment runs deep over the conduct of U.S. forces on foreign soil….

Hostility toward the U.S. military runs deep in the [western] hemisphere, fostered over a century in which the U.S. government supported the oppressive armies of dictators and right-wing governments. For decades, the [USSOUTHCOM] CINC was based in Panama, but the U.S. military presence was forced out in an expression of sovereignty when control of the Panama Canal was turned over to Panama."[46]

Colonel Glenn R. Weidner historically described various means of imperialism and intervention by the U.S. and attempts by the Latin American community to strengthen themselves against such interference. "The bitter aftertaste left by the previous policies of intervention ensured that only a crisis on the scale of the second World War could unite the nations of the hemisphere in military policy."[47]

The Latin American perception is that the U.S. unilaterally abrogated hemispheric treaties in the name of superpower responsibilities and at the expense of Latin American country sovereignty. Despite the collective security arrangement in the Inter-American Treaty of Reciprocal Assistance (Rio Pact) of 1947 and the Charter of the Organization of American States (OAS) of 1948, the U.S. still intervened in Guatemala (1954), Cuba (1961), the Dominican Republic (1965), Chile (1973), Grenada (1983), Panama (1989), and El Salvador and Nicaragua (throughout most of the 1980s). Additionally, "When the United States did take action to promote Latin American economic development, it was either submerged by or commingled with anticommunist security concerns."[48]

The challenge for USSOUTHCOM to overcome this history and resurrect a cooperative relationship is immense.

> The final nails in the coffin for the credibility among most Latin Americans of the Inter-American Military System and especially the Rio Treaty were driven as a result of U.S. unilateral actions: support of Great Britain in the 1982 South Atlantic conflict over the Falkland Islands,

> military support to anti-communist Central American forces in the 80s, and armed interventions in Grenada in 1983 and in Panama in 1989. Of course, the fact that Argentina committed the original aggression which set off the Falklands conflict –- as confirmed by UN Security Council Resolution –- is conveniently ignored by those who argue that the British response should have triggered a hemispheric stand alongside the Galtieri government. The United States invaded Grenada at the request of the Organization of Eastern Caribbean States; it attempted for two years to mobilize OAS support for action against the Noriega regime during the Panama crisis without much success, and ultimately acted militarily when the killing of an off-duty naval officer by the Panama Defense Force indicated that an intolerable threshold of risk to the 40,000 U.S. citizens living in Panama had been exceeded. The Latin American reaction however, asked if the U.S. would support a European power in an attack on a Latin American ally, and invaded sovereign countries in the Caribbean and Central America at whim, of what use is the Inter-American System in deterring aggression by the strong against the weak?[49]

The message for the U.S., according to Jeff Stark, is that unilateral use of power will not necessarily bring the desired results in all cases. "The inference here is clear: any durable and mutually beneficial security regime in the hemisphere will be fundamentally contingent upon U.S. policies that eschew unilateralism and focus on truly common programs for collective security."[50]

Disagreement over the Environment. Environmental issues seem to spark a flame of disagreement between the U.S. and Latin America as well. Environmental/economic trade-offs, severity of and responsibility for the current environmental threat, past U.S. pollution practices to foster industrial growth, and responsibility for the cost of repairing ecological damage, all feed the fire.

The Latin American perception is that the U.S. is trying to use the environment to keep Latin America in the developing stage forever. "The lack of a consensus on hemispheric environmental policy springs in part from the resentment of Latin American countries that are asked to forgo the polluting technologies that drove the industrialization

process in the United States. Similarly, when Latin American policymakers anxious for economic growth face the difficult problem of balancing trade opportunities with potentially damaging environmental consequences, it is the environment that is apt to lose."[51]

Latin America is firm in its position. "They will not allow the North to force the countries of the South to forego the economic development that the North has already enjoyed in order simply to sustain itself as an undeveloped 'natural park' that would soothe the bad consciences of those in the North who have already destroyed much of their own environment. The principle of raising living standards is not negotiable; the ways to raise living standards while the environment is protected will require international cooperation at all, including the highest levels."[52]

In contrast, the North argues it has learned from the past. After an economically-driven polluted history, they now flaunt the highest environmental standards, the technology, and the financial resources to clean up past sins.

> The North often criticizes the developing countries, saying: internationally accepted standards have not been translated into effective legislation at the national level with a capacity for effective enforcement; corruption and administrative incapacity complicate national and international environmental initiatives; trade protectionism bars nations from the benefits of high technology and regional environmental programs; and governments have generally shown a disposition toward the excessive exploitation (often encouraged by multinationals, national firms, and multilateral financial institutions) of natural resources without respect to the impact on the environment. The underlying message from the North is also clear: open up your economies and governments to solutions from the North; allow the invisible hand of the international marketplace to allocate environmental resources and provide incentives for 'sustainable development' that would generate the wealth that can be used for environmental protection.[53]

The U.S. and Latin America do not agree on the responsibilities or degree of urgency of the environmental problem either.

> The North, pressured by domestic public opinion and the growing strength of worldwide environmental groups, has kept the focus on degradation in the developing countries, where virgin habitat still exists and where most of the remaining globally valuable resources are concentrated. For its part, the South points to the North's historical responsibility for global trends such as the increasing greenhouse effect (global warming of the earth's temperature from inefficient combustion and overexploitation of fossil fuels and other energy resources); the production of and trade in dangerous pesticides, fungicides, and hazardous wastes that make their way to the South through trade or waste disposal; and the depletion of the ozone layer through the production of chlorofluorocarbons (CFCs), which destroy the protective effects of the atmosphere's filtering system. [54]

Historically, the U.S. has been the world's largest consumer of raw materials. These raw materials built the world's biggest economy and the world's largest polluter per capita, which widens the relationship rift between the U.S. and Latin America. "At the outset of the 21st century, the three economies [market, traditional village-based way of life, and nature] have become worlds in collision, creating the major social and environmental challenges facing the planet and the region: climate change, pollution, resource depletion, mounting poverty, and inequality. Consider, for example, that the average North American today consumes 17 times more than his or her Mexican counterpart in an emerging economy, and hundreds of times more than the average Bolivian in a traditional village economy. The level of material and energy consumption in the United States requires large quantities of raw materials and commodities, sourced increasingly from the traditional economy and produced in emerging economies."[55]

Solutions to the problems and who will pay for them -- a cost estimated by the UN to be about $125 billion a year for the underdeveloped world alone -- are also sources of discontent.[56]

> The differences of perception and response to the problem do not end when it is time to call out the litany of specific environmental threats to the hemisphere. The degree of urgency and the assessment of the threat may differ from North to South, but when it comes to recognizing specific

> problems, and implementing solutions to those problems, the differences no longer follow the North/South lines. The impulse toward national sovereignty over natural resources and territory remains strong in this fiercely nationalistic [western] hemisphere. The debate often takes on a sweeping tone that avoids a specific focus on national problems and responsibilities. North/South differences serve only to exacerbate this tendency, especially now, when powerful multilateral financial institutions, led by developed countries, are using their leverage to extract environmental concessions.[57]

An Outside Country or Organization

Numerous obstacles exist outside the immediate relationship between the U.S. and Latin America. These obstacles include the lack of a global environmental organization, an unclear definition of security within the Western Hemisphere, and multinational groups.

No Global Environmental Organization. Part of the difficulty in implementing a comprehensive environmental security program for the Western Hemisphere is that there is no overarching environmental organization to set the course for, oversee and coordinate organizational efforts. According to Robin Rosenberg,

> A fundamental asymmetry in the debate over trade and the environment resides in the fact that the international trading system enjoys a well-established, rule-based, outcome-oriented regime, embodied in the General Agreement on Tariffs and Trade (GATT) and its successor, the WTO, yet there is no such regime for environmental protection and conservation. International environmental agreements, such as the 1992 Agenda 21 from the UN Conference on Environment and Development (Earth Summit), while growing in number and stature, do not operate under the auspices of a supranational authority such as the WTO to enforce agreements and resolve disputes. Multilateral Environmental Agreements (MEAs), many of which have been negotiated under the aegis of the United Nations system, may be legally binding under international law but are compelled by soft mechanisms and political will, not by coercion.[58]

Unclear Definition of Security. The U.S./Latin American foreign policy has historically been dominated by security interests. For example, the Monroe Doctrine and

U.S.-sponsored counterinsurgency assistance in the 1960s and 1980s were reactions to external threats to U.S. primacy in the Western Hemisphere. "Other policy objectives were generally pursued within the security context, on the assumption that economic progress and profits for U.S. transnational business interests could not be achieved in an unstable political environment."[59]

But, just as the U.S. struggled over the past decade to set a foreign policy strategy, the Western Hemisphere struggled with a clear definition of security. Difficulty in defining security and the military's role in that definition creates uncertainty for USSOUTHCOM in general and in their execution of an environmental security strategy specifically. Since security is based on perceived threats to the future of a state and the welfare of its citizens, the nature of the new threats (in the absence of the Cold War, and World War II before that), must be characterized. This characterization is necessary before one can assess the relative priority of environmental security as compared to economic security, and threats from ethnic, religious and other types of conflict.

Jeff Stark of the North-South Center recognized the changing definition of security as it applies to the Americas as early as 1992.

> In the interval between the disappearance of the structures and presumptions of the past and the development of political and economic institutions more appropriate for the future, the nations of the Americas face a central question for analysis and policy formulation: How can the concept of 'security' be redefined to meet the demands of a new era?
>
> 'Security' is a curious word, full of practical complications when declared to be a policy objective. Its linguistic root, *securus*, meaning 'free from care,' reminds us that security does not exist in relation to a predetermined set of specific conditions but rather as a term of reference to a sliding scale of greater or lesser threats that inevitably vary over time and place.
>
> Traditional notions of security based largely on European and U.S. historical experiences and concerns about the military threats to territorial integrity and physical safety posed by expansionist powers, have quite

> limited relevance to the post-Cold War realities and needs of the Western Hemisphere….
>
> However, in the new democratic context and as a result of heightened public awareness of the far-reaching consequences of certain threats to security -- drug trafficking and environmental degradation stand out as prime examples -- the potential security agenda has become increasingly complex and diffuse, including not only economic issues and conventional concerns, such as border disputes, arms control, and armed insurgencies, but also fundamental questions about the relationship between the exercise of political power and the role of the military….[60]

Later in this paper, Stark issues a caution: using the term "national security" to discuss nonmilitary problems tends dangerously to result in military solutions. Instead, "the concept of national security should be confined strictly to its traditional usage and items from the so-called positive security agenda should be termed national 'goals' or national 'objectives.'"[61]

The debate over security threats and definitions is occurring throughout the Western Hemisphere.

> Since the collapse of the bipolar world power paradigm in 1991, the concept of security in the Americas has come under intense review. Some have seized upon the end of the Cold War as an opportunity for the progressive disarmament of the southern portion of the hemisphere; adopting a 'Costa Rican model' with respect to defense establishments would redirect scarce resources to the critical social needs of developing countries and curb the tendency of the region's militaries to intervene in political activity. Interstate security, for these analysts, would be guaranteed by international organizations and moral suasion, as well as the inherent limiting effect of consigning marginally effective military establishments to the scrap heap. Internal security would be assured by social and economic progress and the limited activities of civilian police forces.[62]

Not all countries follow Costa Rica's philosophy but there is agreement on some aspects of a security definition. According to the Organization of American States, Committee on Hemispheric Security, report of the chair, 8 May 2000, although each member had a slightly different perspective on security, "there was almost unanimous

agreement … [on] … the need to recognize the close links between security, development and consolidation of democracy, as well as the historical relationship between peace and democracy."[63] According to this report, most delegates also agree that 21st century threats do not come from the military. Rather the threats come from "new and complex phenomena such as narcotics trafficking, illicit trafficking in arms, and transnational crime by non-state actors, with all their repercussions in terms of violence, insecurity and the destabilization of political institutions. Small island states emphasized threats to security posed by natural disasters, the transportation of nuclear waste across the Caribbean Sea, and vulnerability to economic globalization, among other factors."[64] Understandably, some nations, including Jamaica, Antigua and Barbuda listed environmental issues such as natural disasters and global warming among their security concerns.

Environmental security has also been the subject of recent debate. In his paper, "Making Sense of Environmental Security," Frank McNeil, a former U.S. Ambassador to Costa Rica and senior State Department official first makes a connection between environmental change and conflict. According to McNeil, this connection exists, but to prove it requires a blend of science and politics. He describes a joint effort between The Dante B. Fascell North-South Center and the Rosenstiel School of Marine and Environmental Sciences to test an operational concept for environmental security.[65] The process-oriented concept argues that "science-based studies, which meld physical science with the discipline of political economy, are a suitable vehicle for forecasting future conflicts derived in some measure from environmental degradation."[66]

In this process, the North-South Center and the Rosenstiel School analyzed two case studies, one of South America's Upper Paraguay River/Pantanal region and the other of the Wider Caribbean. From these studies, Ambassador McNeil draws two conclusions:

> - There is, in fact, such a thing as environmental security. In the metaphor that environmentalists love, environmental security is a 'canary in the mine,' warning of the danger of conflict or seriously conflictive relations.
>
> - 'Environmental security' is convenient shorthand for discussing the risks of conflict but only if you think locally and think in real time. In the next five to ten years, environmental change may, in fact, contribute to conflicts within nations or across borders.[67]

Ambassador McNeil recognizes the difficulties involved in analyzing environmental security, and, in fact, national security in general.

> In the main, the U.S. security community treats environmental security as 'outside the box,' despite a recognition that environmental degradation should be added to their lists of causes of conflict.
>
> In part, the difficulty stems from the lack of an overarching concept of post-Cold War security as a frame of reference. The balance of power has not been repealed, but there is nothing like the Concert of Europe, the struggle against the Axis, or containment of the Soviets to concentrate the minds of policymakers. Security is being redefined in fits and starts, and the process is not pretty. The environment is just one of many claimants for priority.
>
> To be of use in containing the risk of conflict, environmental security will have to be built from the ground up, by getting the science right and drawing inferences about specific security risks from local realities. Knowledge of the scientific realities and the ecological and economic perils is extensive, but analysis of their security implications is far from complete.[68]

In general, policymakers must make the term "environmental security" relevant by changing the focus from planetary to local and regional. He provides a few examples to establish this point including the Phillipines, Guatemala, Columbia, Panama, Venezuela, Peru and Ecuador. Additionally, Ambassador McNeil recommends the following:

- Set aside grand theory. Follow the facts. Let the science in the case studies set the stage for devising indicators, assessing risk, and analyzing larger implications.

- Environmental security is a two-way street: 1) Environmental insult may foster conflict, and 2) extant conflictive relations may foster environmental degradation.

- Environmental security is not a stand-alone item. It is a subset of much larger matters, security writ large and what is generally called 'sustainable development,' involving conservation and wise use of the environment to foster economic growth.

- The end product is forecasting, not straight-line prediction. That means seeking to 'bound the possibilities' for conflict in a realistic way.[69]

In a 1999 report published by North-South Center at the University of Miami, *Environmental Stresses and Regional Security in Latin America and the Caribbean*, Ambassador McNeil teamed with Jeff Stark and Anthony Bryan to discuss this subject. "In recent years, officials responsible for security matters in the United States have tried to begin to give institutional expression to concerns about the linkage between environmental threats and security. However, while the fact that there is a relationship between the environment and security is intuitively apparent, the point at which environmental concerns become 'security problems' is elusive and subject to diverse interpretations on the part of policy analysts and practitioners in the environmental and security communities."[70]

The environmental security discussion can be framed in the overall context of negative security issues (threats to sovereignty, borders, physical survival) and positive security (economic well-being, housing, health care, education, and environmental integrity). According to Stark, "The spectrum of negative to positive security, however, does not function as a guide to the establishment of national security priorities. While defense against external aggression is an essential aspect of security in the abstract, in the

absence of real threats it has no particular implications for policy. Priorities can only be determined in relation to threats, which vary according to plausibility, proximity, and intensity. Assessments of these factors are speculative, subjective, and likely to require frequent modification."[71]

Wrapping up this discussion on security, the United States delegation, speaking at the Committee on Hemispheric Security on April 20 and 21, 1999, appeared to agree with Stark's internal versus external theory.

> The current inter-American security system was designed for responding to threats from outside the hemisphere. However, there are certain security threats from within the region that can only be effectively addressed through multilateral cooperation. Non-traditional, transnational security threats, such as terrorism, narcotics trafficking, natural disasters, environmental disasters, transnational criminal enterprises, and illegal immigration require multilateral responses by governments.
>
> These modern threats are also cross-cutting problems that require multifaceted responses by different national organizations depending on the nature and severity of the threat. Effective communication among national governments will be necessary to respond appropriately and increase capability for joint and combined actions. In many cases the region's response may require actions by both civilian and military elements, as directed by governments. Joint training, professionalization of security forces and a certain level of interoperability among similar government agencies will be necessary for effective multilateral cooperation.[72]

The U.S.-recommended approach should consist of three functions.

- When requested, provide assistance to member states for early warning, the settlement of disputes and strengthening of mechanisms for the prevention of conflicts;

- Facilitate an appropriate response when member states request assistance from the hemispheric community to help address threats to governments arising from inter-state tensions;

- Organize cooperative, multilateral responses to transnational security threats.[73]

Multinational Groups. Many multinational groups exist that inhibit progress toward environmental security such as international organized crime (IOC), multinational corporations (MNC), and military industrial complexes. International Organized Crime organizations draw attention and resources away from positive security efforts, particularly in developing countries. Additionally, international crime is involved in toxic waste trafficking and nuclear materials.[74]

Some MNC are also significant contributors to environmental problems. According to the Commission on Transnational Corporations in 1991, "The capacity of governments to manage their economies and achieve national objectives in areas ranging from fiscal policy to environmental control is being strained by the growing importance of transnational corporations in the international economy."[75] The Global South perspective is that these MNC tend to ignore the values and needs of the vast majority in their countries.[76] These corporations serve customers, not governments, and are in business for profit. They may understand global issues, but are not as concerned about the environmental degradation they may cause.[77]

Lastly, military industrial complexes--coalitions among arms manufacturers, military bureaucracies, and top government officials--sometimes promote unnecessary defense expenditures for their own profit and power.[78] As mentioned earlier in this chapter, funds for these expenditures are drawn away from human security investments, particularly in developing countries.

Conclusion

This chapter covered the challenges or obstacles to the implementation of an environmental security program. Some of the obstacles were previously determined by

USSOUTHCOM in the writing of their Draft Environmental Security Supplement. Others were discovered in my literary research. The next and final chapter covers a strategy for overcoming these obstacles.

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Chapter 6

Environmental Security Strategy

We shall require a substantially new manner of thinking if mankind is to survive.

—Albert Einstein

Introduction

At this point in the paper, I've completed all the research from both methodologies. The descriptive study is covered in chapters 2 – 5 and the Delphi Survey and analysis is in appendices B - E. In Chapter 5, I discussed the challenges or obstacles existing that may inhibit USSOUTHCOM's achievement of their environmental security objectives as described in the first research question, "What are the critical challenges facing the military in executing their role, mission and objectives?" In Chapter 6, I apply the results of my work to the second research question, "What are the possible strategies available to overcome the challenges?" and develop an environmental security strategy for USSOUTHCOM as shown on Figure 6.

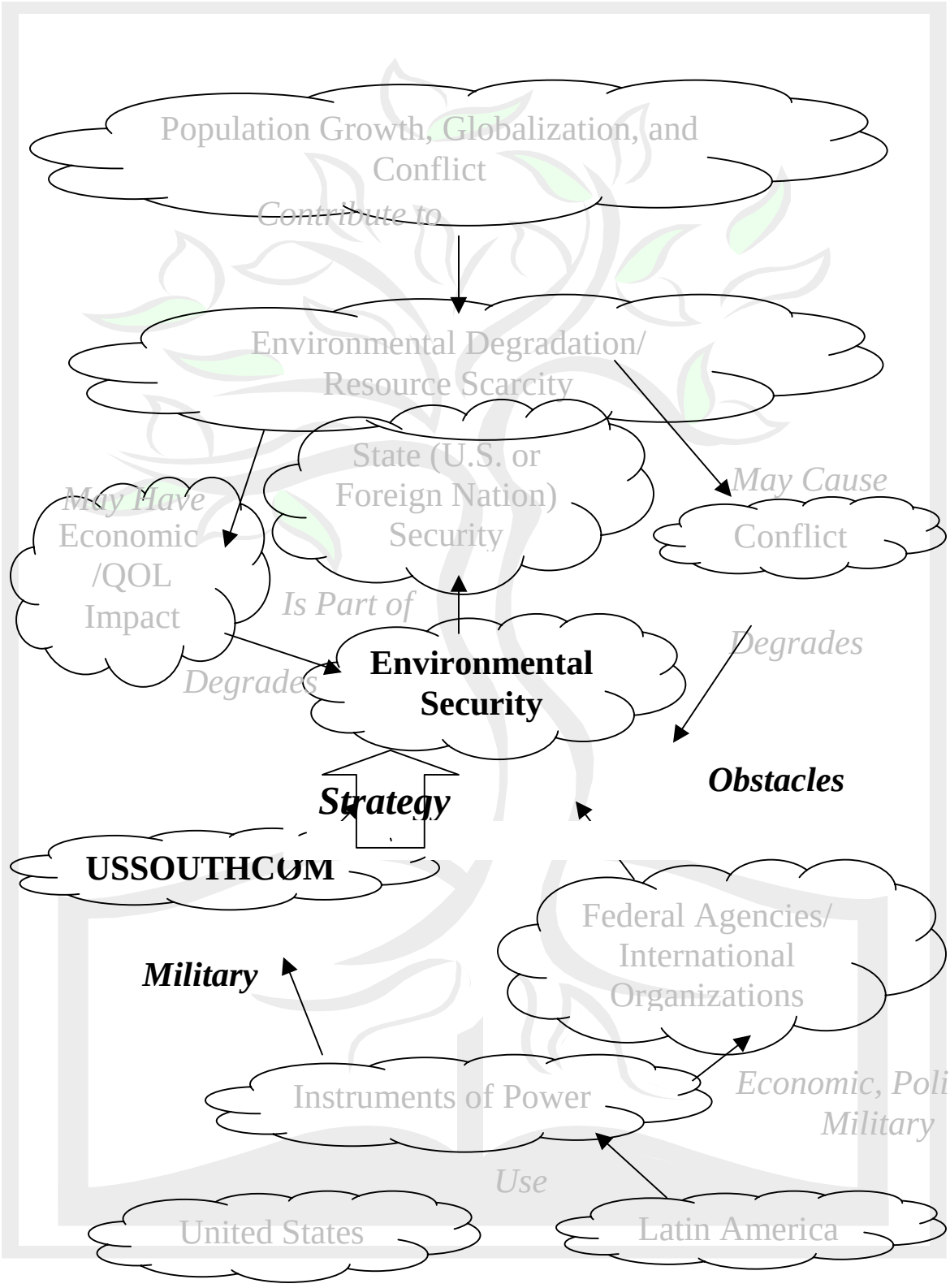

Figure 6. Environmental Security Diagram

I deliberately chose the end product of this work to be a strategy, not merely a list of actions, because of the importance of strategies to military organizations. This chapter is also deliberately not organized along the same lines as the previous chapter, "Obstacles to USSOUTHCOM Objective Implementation." The reason for this is simple. A strategy should be vision-based, not problem-based. A strategy describes the route to be taken, connects the vision to the end-state, and clarifies the boundaries for the proposed activities. Lastly, a strategy signals a long-term commitment on the U.S.' part for the countries involved, an important signal for success. As one Delphi expert said, "If DoD doesn't show the long-term commitment to [Latin American] countries, we lose their goodwill and trust."[1]

In that vein, the environmental security vision for this strategy is, "Build an environmentally educated and trained combat force capable of executing traditionally military functions in Latin America." The recommended end state is the actual combat force. To reach the end state, I recommend the strategy should be "Engage in Traditionally Military Functions." The strategy is grounded in the National Security Strategy and National Military Strategy, and supported by the research.

Strategy -- Engage in Traditionally Military Functions

In this strategy, "military" is meant to include all members of the Department of Defense, not just those wearing uniforms. The distinction I draw by the phrase "traditionally military functions" is between actions the military *is capable of doing*, versus those the military *should do* and *does best*. For example, the U.S. military is capable of assigning troops to Latin America to "hug trees" as part of its environmental

security strategy, but, under normal circumstances that is not something the military should do, nor is it necessarily something they do best.

Another way of looking at traditional military functions is from the instrument of power (IOP) perspective. The distinction between the military and the economic and political IOPs is clear in the U.S. National Security Strategy (NSS).

> The US military plays a crucial role in shaping the international security environment in ways that protect and promote US interests, but is not a substitute for other forms of engagement, such as diplomatic, economic, scientific, technological, cultural and educational activities. Through overseas presence and peacetime engagement activities such as defense cooperation, security assistance, and training and exercises with allies and friends, our Armed Forces help to deter aggression and coercion, build coalitions, promote regional stability and serve as role models for militaries in emerging democracies. With countries that are neither staunch friends nor known foes, military cooperation can serve as a positive means of building security relationships today that will contribute to improved relations tomorrow.[2]

This distinction is also brought out in the comments of all nine Delphi experts and in my analysis of the literature during the descriptive survey. In both methodologies, the activities recommended for military involvement were limited and specific. For example, one Delphi expert stated that, "SOUTHCOM will have three environmental security roles. One is the strict mil-to-mil engagement on environment, safety and health to improve military interoperability. The second will be a democratic, nation-building approach that should be done in cooperation with the State Department and will seek to include other government agencies, international government agencies, and the non-government agencies. The third role will be in the areas of peacekeeping and disaster relief in which the CINC is likely to be given command authority over regional assets. In this final role, the CINC should reach out to include [international government organizations] IGOs and [non-governmental organizations] NGOs where appropriate to

get the job done."[3] Even the Delphi expert who did not advocate for a military role in environmental security did argue to keep military involvement focused on traditionally military matters.[4]

I recommend USSOUTHCOM engage in traditional military functions with regard to environmental security for three reasons—opportunity, expertise, and risk. First, opportunity—as described in Chapter 5, the relationship between the United States and Latin America does not lend itself to military intervention**.** Latin Americans will not be receptive to U.S. military interference into Latin American matters. That, in itself, limits the success window to activities in which a need exists, where the U.S. has a demonstrated military prowess, in locations where that prowess is unmatched, and where the greatest impact can occur. The need exists as I've discussed in the first part of this paper, and the U.S. military prowess is clearly unmatched. But, it's also important to understand the extent of control the Latin American militaries have on many aspects of the government. As one Delphi expert stated, "In many countries, the military controls or produces all other geographic resources, such as maps, air photos, satellite images, many environmental resource books, etc. The military, therefore, is often the best organization within the Latin countries to empower other groups such as NGOs, who have more of the scientific expertise necessary to solve the problems."[5] If understood and properly incorporated into the strategy, the U.S. can take advantage of the Latin American military responsibilities via engagement activities.

Second, expertise--much of the research shows that the most significant way to improve the environmental condition of a nation is to improve the economic status of that nation, because a direct connection between economics and environmental degradation

exists. According to Jeffrey Stark, "Part of the reason that economic security is of prime importance is that it is the subtext of almost every other security issue, from armed insurgencies to the destruction of forests."[6] The U.S. military is not in the economy business, nor should it be. The military does, however, have expertise and experience in traditional military functions. Third, risk--an argument exists in research that if the military expands the boundaries of its responsibilities, and takes on non-traditional functions, it will risk the ability to perform its primary military function—war fighting. As one Delphi expert put it, "SOUTHCOM should not dilute its military readiness by drifting off in odd directions."[7]

It is important to understand, in implementing this strategy, the differences between protocol in the U.S. and protocol in Latin America. In the U.S., when an action is coordinated between the military and another organization, the individual in the military would search for the proper counterpart of relatively equal rank or status to discuss the action. Meetings and tentative agreements on details would be subsequently discussed at higher and higher levels until the final decision was made at the appropriate level. In Latin America the opposite is true. To originate an action requires top-level meetings first. Then the subordinates work out the details. Applying this protocol to USSOUTHCOM's role in environmental security means the CINC must meet with the senior military official in a Latin American country to discuss and agree on the relative importance of, and strategy to implement, environmental security first. Then, the subordinates can meet on the details of the strategy.[8]

With that justification in mind, I chose traditionally military functions from the Delphi Survey responses and the literature analyzed during the descriptive survey and compiled the following list of support activities:

- Strategy—Engage in Traditionally Military Functions
    - Activity 1--Create an environment of peace and stability so economic and environmental progress can flourish
    - Activity 2--Assist in natural disaster recovery
    - Activity 3--Use military-specific assets
    - Activity 4--Incorporate environmental conditions into intelligence forecasts
    - Activity 5--Lead by example
    - Activity 6--Assemble and train the team

Activity 1--Create an Environment of Peace and Stability so Economic and Environmental Progress Can Flourish

Creating an environment of peace and stability in the Western Hemisphere is the most important USSOUTHCOM action to enhance environmental security for four reasons. First, as stated above and in Chapter 5, the economic status of a nation must improve to better the environmental condition.[9] Peace is a pre-condition, although not the only pre-condition, to economic improvement in Global South developing countries. Peace is also more inviting to international investment and trade in those countries, and the resulting improvement in the economy and quality of life for the inhabitants.[10]

Secondly, peace will preclude the possibility of environmental damage due to conflict. Depending on the level of conflict, resulting damage could range from chemically contaminated water to defoliation, forest fires, and oil contaminated resources as in the Gulf War. All this can be avoided in a stable, peaceful environment.

Thirdly, conflict and war will take priority, in terms of resources, over environmental initiatives. The numerous environmental initiatives of intergovernmental organizations, non-governmental organizations, and trade treaties will not be realized in a

war or conflict situation. Fourth, war and conflict, and preparing for them, is expensive.[11] Keeping the peace in the Western Hemisphere will free up funds to invest in environmental, economic, and state infrastructure areas.

The National Military Strategy (NMS) emphasizes peace and stability as a foundation to the pursuit of national security interests. "(It) means creating and sustaining security conditions globally, and in key regions, allowing the peaceful pursuit of our interest and the just resolution of international problems through political means….Such stability reduces the likelihood of widespread conflict and allows the pursuit of our interests by other instruments of national power. Where a potential regional hegemon threatens our interests and those of our allies through the buildup or use of armed forces, US military power may be concentrated to assure allies and friends, redress the imbalance, and deter or defeat aggression. Where the risk to peaceful intercourse stems from other sources, US forces may conduct operations or otherwise contribute to efforts that seek to prevent conflict and reduce threats."[12]

According to the NMS, the military must be globally engaged and provide fundamental security to keep peace. "The rise of regional powers is leading to a multipolar world that can be either more secure or more dangerous – hence the importance of the President's [Clinton] 'imperative of engagement'"[13] Global engagement and the activities of deployed forces promote stability and peaceful resolution of problems, deter aggression, and help prevent conflict. "Conflict prevention means the reduction, mitigation, or neutralization of the causes of conflict. Though the military by itself can rarely address the root causes of conflict – as it often stems from political, economic, social, and legal conditions that are beyond the core competence of

the military to resolve – military forces can provide a degree of fundamental security and use their unique operational and logistical capabilities to help civil initiatives succeed. Such military operations can have important strategic value when they promote the overall stability the US seeks, thus reducing the need for greater military effort later."[14]

The USSOUTHCOM regional stability mission clearly falls under traditional military functions. How environmental security fits into that mission is discussed in Chapter 4 and summarized by one Delphi expert. "Environmental security is more and more being recognized as a key aspect in the stability equation for a given country or region. Environmental degradation and threats to human health create sometimes difficult to quantify costs to a country/region's economy….Increasing migration and refuge flows into the US could have long-term impacts on our internal stability. Improving quality of life by enhancing environment, safety and health in individual countries throughout the region fully supports the SOUTHCOM role in promoting regional stability, and ultimately US stability."[15]

Activity 2--Assist in Natural Disaster Recovery

The U.S. military possesses special equipment and talents, including inherent leadership and logistical capabilities, to respond when called upon, in natural disaster recovery. World nations recognize this capability and frequently call upon the U.S. to assist them, as occurred when Hurricane Mitch hit Central America in October 1998, causing 9,000 people to perish and nearly $9 billion in damages in an already-impoverished region.[16] One Delphi expert said, "Long ago, we learned that such things as natural disaster relief and clinic/road/school building were and remain suitable [military] engagement areas."[17] Understandably, organizations such as the Red Cross,

and other nations, may also be involved, and the U.S. military may not lead the effort. Nonetheless, the positive impact on the U.S., the troops involved and the damaged nations make this a prime target for engagement. For example in Honduras, "[Hurricane Mitch] has served as a catalyst for positive change, and reconstruction planning and implementation, supported by the international community, has accelerated democratic institution building."[18]

Often, civil authorities are overwhelmed by natural disasters and environmental degradation, particularly when combined with other global problems in developing countries with wealth, health, and literacy distribution inequalities. Colonel Glenn R. Weidner states,

> Those conditions are exacerbated in some countries by the effects of continuing insurgency (frequently dependent on international criminal financing), transnational criminal activity such as narcotrafficking, terrorism, illegal migration, trading in stolen vehicles, weapons and other contraband, and by environmental degradation or natural disasters. In each of these areas, civil organs throughout Latin America and the Caribbean are generally inadequate to the enforcement and remediation tasks at hand. The militaries, in many cases, with their logistical support capabilities, their highly centralized organizational structures, and their unique information processing capacity, are positioned to respond more effectively.[19]

As compared with most civil authorities, the U.S. military is built and trained for large-scale emergencies. Joint Vision 2020 discusses the military capabilities in these situations. "The capability for focused logistics will effectively support the joint force in combat and provide the primary operational element in the delivery of humanitarian or disaster relief, or other activities across the range of military operations."[20]

Activity 3--Incorporate Environmental Conditions into Intelligence Summaries

One of the most important traditional military functions is gathering intelligence on foreign countries, assessing risk and developing national defense capabilities to aid senior decision makers develop and implement strategic and tactical objectives. The National Military Strategy emphasizes the need for good intelligence data.

> A globally vigilant intelligence system that is able to operate in a complex environment with an increasing number of potential opponents and more sophisticated technology is critical. Our Armed Forces require the timely collection, evaluation, and assessment of a full range of geo-political, socio-economic, and military information throughout the full spectrum of conflict. Our intelligence system must be capable of maintaining its global warning capabilities even while focusing on one or more crises. It must overcome increasingly varied means of deception and protect and secure its information channels. It must respond to the war fighters' needs during compressed decision cycles, and accommodate 'smart' and 'brilliant' weapons systems that pass targeting information directly to weapons platforms. The technical ability to deliver large quantities of intelligence to all levels without overwhelming commanders and leaders has enormous promise. However, quality intelligence remains equally dependent upon subjective judgment, from collection and processing to production and dissemination.[21]

Earlier in this paper, I established a connection between environmental degradation/resource scarcity, conflict, and national security. Logically, then, assessing the risk to national security interests from foreign countries' environmental conditions should be included into intelligence summaries.

An article published by the University of Miami's North-South Center applies intelligence data collection to environmental security. "The identification of 'hotspots' of potential conflict both in terms of specific human activities … or geographic locations … can be an important contribution to environmental security. Many 'hotspots' are already well known to those in the security community for political and economic reasons."[22] But the data must be processed in a scientific manner. "What we are suggesting … is that

by putting environmental science *first*, the list of locales and situations worthy of attention by policy-makers may be usefully expanded. Together with U.S. diplomatic missions in the region and other stakeholders interested in environmental security, the U.S. military can serve as a 'canary in the mine,' helping to give elected and appointed officials early warning of possible conflicts and upheavals." (italics in original)[23]

Depending on the urgency, the U.S./host nation relationship, and other conditions, the U.S. may choose to collect and analyze environmental intelligence information unilaterally, jointly, or solely at the request of the nations involved. When needed or requested, the U.S. military has two possible methods of collecting and incorporating environmental information in country analysis: (1) sponsor research conducted by organizations like RAND or universities with environmental security expertise, such as the University of Miami (UM) and UM's North-South Center, or (2) the U.S. can train its intelligence officers to collect and analyze such information. The effort will have a greater probability of success if both methods are combined. This will facilitate the collection of the most data possible while focusing intelligent minds with a variety of experience and expertise on the effort. Additionally, within classification limits, this information can be shared with NGOs, IGOs, and PVOs having environmental security interests, thereby leveraging its value.

In Chapter 3, I discussed the processes to determine the appropriate environmental triggers that might lead to the conflict, as well as how, when, and where to offer assistance or engage with the nation(s) involved. According to Brian Shaw, this is not an easy task.

> The impact of environmental issues, on tension and conflict, is a serious issue facing national security policy communities. This relationship is

> important enough to lead the Secretary of State to develop specific actions to integrate environmental issues into regular planning and conduct of policy. While there are systematic processes to identify, document and explore environmental issues, it is much more difficult to identify the linkages between the consequences of this environmental issue and security issues. This process is complicated by the numerous points of view on the extent and the need to include any given environmental problem as a security issue….
>
> Unfortunately, identifying the specific environmental cases that threaten a specific security issue is neither direct nor straightforward. Not all environmental problems are security problems. In fact, most environmental problems are decidedly not security problems. This is not to say that they are any less important or critical to national and international agendas….
>
> Environmental resource issues are significant in and of themselves, nonetheless, recognition that damage to shared resources can have major impacts on the stability of relationships between countries directs a focus on security concerns. There are three considerations for developing the relationship between environment and security. First, it is important to recognize that both security and environmental issues are contextual; the extent and impact of a given problem is relative to its location and the sensitivity of the system affected. Second, it is the security issue that provides the context for understanding the impacts of environmental issues and, third, the analysis of environmental issues must be compatible with the analyses of related security issues.[24]

Brian Shaw suggests a series of questions to determine which actions require an immediate military or political response and which are more long-term, requiring a diplomatic response.

> Critical questions revolve around providing guidance for action and implementation of policy in the appropriate setting and context. Generally these questions are simple in their phrasing and difficult in their answer:
>
> - Which issues are short-term, i.e. within the range of policy action (1-3 years)?
> - Which issues are long-term, i.e. within the range of diplomacy (3-10 years)?
> - Which issues are consequential to future generations?
>
> The magnitude of the impact must be assessed:
>
> - Which issues have the shortest-term destabilization potential?
> - Which issues have the broadest destabilization potential?
> - Which issues require the least or most resources to address?

> And finally, the impact on U.S. security and U.S. interests must be gauged:
>
> - Will the destabilization impact U.S. security directly?
> - Will the destabilization impact the security of U.S. allies?
> - Will the destabilization impact broader U.S. interests in the region?[25]

While the inclusion of politics is obvious in this process, the North-South Center determined during an Environmental Security Workshop that ground-level analysis of environmental security issues must be based on science.

> Both working groups recommended the need to develop a regional environmental impact assessment (EIA) and decision-support system (DSS)….
>
> The workshop participants felt that further analyses of case studies would prove useful for helping to identify those regional environmental-social linkages with the highest probability for generating conflictive relations. There was agreement that this 'science-first' route into the exploration of environmental security issues has significant untapped potential.
>
> From a scientific perspective, it was felt that policy-makers, managers, and the public could benefit from a transparent decision support system and process based upon scenario-consequence analyses. This DSS could be used to analyze a variety of scenarios, be available to all interested parties, and used to forecast future consequences of policy options and management tools, as well as make recommendations. Research would create new analysis and visualization tools to characterize effects/social implications from different management options and present the results in a transparent manner. Transparency is particularly important if one is to build an atmosphere of trust among stakeholders and for communicating results.[26]

Activity 4--Use Military-Specific Assets

In addition to the military-specific capabilities—logistical support and command and control—mentioned in Activity 2, the U.S. military has certain assets that are exclusive to the Department of Defense. Understandably, the primary purpose of these assets is to protect and defend the U.S. However, opportunities exist to glean combined benefits

from the assets with minimal effort. Two such opportunities include use of intelligence data for environmental needs and using remote sensing equipment for surface and subsurface monitoring, both of which were discussed in Chapter 4.

Intelligence Data for Environmental Needs. The U.S. military's intelligence assets gather information to assist senior decision makers develop and implement strategic and tactical objectives. The argument presented earlier in Chapter 3 that a link between environmental degradation/resource scarcity and national security justifies the need to collect environmental information for intelligence purposes. Additionally, because of the quality of the data captured by these assets, and because the data has been collected for long periods of time, the value to the environmental community is enormous. Based on information obtained from a RAND report by Scott Pace, Kevin M. O'Connell and Beth E. Lachman,

> The end of the cold war and changing national security threats have sparked major debates on the purpose, roles, and functions of the U.S. intelligence community. At the same time, increasing interest in the global environment has raised awareness of how environmental hazards, including natural disasters, can threaten the security of the United States. Environmental changes from natural and man-made causes can foster conflict over scarce resources, create large-scale human migrations, and destabilize foreign governments. These changes may be rapid, as with nuclear accidents, or gradual, as with global warming. Global environmental monitoring could more effectively manage limited natural resources and environmental problems.[27]

According to this report, the possible uses of intelligence data include: "mapping, natural disasters, (e.g., earthquakes, volcanoes, floods, hurricanes, forest fires), search and rescue, natural resource management and preservation (e.g., forests, wetlands, grazing, agriculture, biodiversity), and regulatory violations (e.g., toxic releases, oil spills, waste water discharges). Each of these interests could benefit from current and historical imagery and other types of monitoring data. Moreover, civil agency

environmental missions increasingly have international components, such as tracking pollution or coordinating disaster relief. Thus, the use of intelligence data or information derived from intelligence data can support international cooperation."[28]

Private industry recognizes the market for precision imagery, both in, and out of, the environmental community. After a year-long study, the U.S. government has decided to support this market and has "licensed a Colorado firm to sell extremely high-resolution satellite photographs to its customers around the world, effectively relinquishing intelligence agencies' monopoly on precision imagery from space….Allowing the sale of photographs that are taken from more than 400 miles in space, yet clearly show objects as small as 19 inches in length, represents a major development for the commercial satellite industry and the national security community. Starting in 2004 … everyone from urban planners and environmental groups to foreign governments and extremists may have access to 'half-meter resolution' images of cities, airports and military bases around the globe, down to what type of radar is mounted on what model tank."[29]

Although licensing private firms to sell imagery can help environmental researchers collect current data, conducting research by comparing that data with the past to determine progress or trends would not be possible unless the government also releases old imagery.

Remote Sensing Equipment for Surface and Subsurface Monitoring. The previous section covered intelligence data. In this section, I will discuss the use of U.S. military sensors for environmental purposes, specifically those used for intelligence gathering and battlefield management. The opportunity for joint USSOUTHCOM/Latin American environmental growth comes when the equipment can be used for both

intelligence gathering/battlefield management and environmental research. For example, if training or intelligence flights were developed such that the information gathered could be shared with the host nation and the scientific community, it would greatly increase the world of environmental knowledge and the U.S./Latin American relationship, while still accomplishing the military mission.[30]

Other assets could also be jointly used, although I did not read about them in my research. For example, one Delphi expert mentioned, "using our military engineering assets, (Corps of Engineers, NAVFAC, AFCES, etc.,) [to] look for areas where our technical assistance could be leveraged to resolve potential ES conflicts."[31]

Activity 5--Lead by Example

With strength comes responsibility. Inherent in the strength of the U.S. hegemonic role is the responsibility to set the example environmentally for the world. USSOUTHCOM is integral to U.S./Latin American foreign policy and, consequently, a critical player in the image the U.S. wishes to portray. A Delphi expert described the point this way. "The most important aspect of SOUTHCOM's strategy regarding environmental security should be leadership that works with people and organizations in the AOR to improve living conditions, responds efficiently with other players to environmental crises, and generally and genuinely demonstrates that their environmental security interests are consistent with the US'."[32]

According to Lieutenant Colonel Rensema, the USSOUTHCOM can demonstrate leadership and example-setting especially via military-to-military relationships.

> Environmental security engagement is a process. In the spirit of the NMS, the process includes establishing and extending the concept of our environmental ethic across new and re-emerging democracies. Engagement consists of using the military to relate important concepts that

> will ease the transition into a democratic nation. This process entails using a similar organization (the military) to relate one-on-one the tenets of democracy and the subordination of the military to civilian authority. To engage specifically in the environmental security adds an additional requirement of expertise in environmental security. The military organizations in these countries are normally the strongest advocate of the central government. Through mil-to-mil relationships, a level of rapport and trust is established. We can convey the principles of democracy and our environmental ethic under favorable conditions. Key to this program is how we have integrated environmental security into our military operations, a model for them to emulate.[33]

One Delphi expert identified two example-setting areas. "USSOUTHCOM has to set a good example in its environmental planning and management of operations, in ways visible to other nations. That will help other nations grasp that military forces need not be unnecessarily destructive." (emphasis in original)[34]

The expert's identification of two distinct leadership areas--environmental planning and management of operations--is supported by research. Environmental planning is required by Executive Order 12114 for non-exempted Federal actions.[35] The USSOUTHCOM can demonstrate its commitment to environmental security by incorporating the procedures into the preparation for all major actions, and encouraging Latin American countries to follow suite.[36]

The second example-setting area is management of operations. According to another Delphi expert, the environmental ethic must be fully integrated into the U.S. military culture.

> Environment, safety and health should be integrated into everything they [USSOUTHCOM] do at the strategic, operational and tactical levels. This is to protect our own interests and forces as well as providing the opportunity to share this knowledge, practices, methodologies with the right people at the right time while engaging with other militaries….Both the Army/Air Force Guard and Reserves have been doing much in the Caribbean and Central America for years with engineering units who go down to train, build schools, roads, dig wells, etc. More could be done to ensure that environment, safety and health is integrated into every aspect

> of these missions and to ensure that appropriate amount of time is taken to discuss and educate the foreign militaries and civilian authorities that also participate in these actions. Strongly recommend having a trained eye review various training operations and bi/multi-lateral exercises to pull out the ESH [environmental, safety and health] engagement aspects. One recommendation would be to draw on reserve engineers, civil affairs units to come down and do two week assignments to write up stories on this type of engagement.[37]

One can debate whether or not the U.S./Latin American relationship would elicit a direct, positive response to example-setting. According to a Delphi expert, "Given cultural differences that exist between 'them' and 'us,' I am not certain that any of us can really change this (environmental awareness in Latin America) situation. But perhaps if the 'environmental division' of the US military is given high visibility, then Latin American militaries may change as well."[38] Regardless, the U.S. responsibility exists as part of the global stewardship and leadership roles. By setting the environmental example, Latin American militaries may be more inclined to follow our lead and begin instituting sound environmental policies within their organizations.

Activity 6--Assemble and Train the Team

The U.S. reserves the right to act unilaterally when necessary.[39] But, the new variety and scope of global threats … ethnic conflict, terrorism, drug trafficking, environmental degradation and resource scarcity, etc … emphasizes the importance of building and training teams to address the threats and protect U.S. national security interests.

It is understood during the discussion of this activity that USSOUTHCOM may not be the team leader. Which organization leads depends on the event or initiative. The approach remains the same, however. Specifically, a team operating in concert and consisting of properly educated individuals from appropriate organizations can be much more successful in addressing transnational issues than an individual organization

operating alone. This concept was frequently mentioned by the Delphi experts and occurs in USSOUTHCOM's Draft Environmental Security Supplement and other research documents.

According to Joint Vision 2020, security threats and future operations drive a team approach.

> The complexities of the future security environment demand that the United States be prepared to face a wide range of threats of varying levels of intensity….Complex contingencies such as humanitarian relief or peace operations will require a rapid, flexible response to achieve national objectives in the required timeframe. Some situations may require the capabilities of only one Service, but in most cases, a joint force comprised of both Active and Reserve Components will be employed.
>
> The complexity of future operations also requires that, in addition to operating jointly, our forces have the capability to participate effectively as one element of a unified national effort. This integrated approach brings to bear all the tools of statecraft to achieve our national objectives unilaterally when necessary, while making optimum use of the skills and resources provided by multinational military forces, regional and international organizations, non-governmental organizations, and private voluntary organizations when possible. Participation by the joint force in operations supporting civil authorities will also likely increase in importance due to emerging threats to the US homeland such as terrorism and weapons of mass destruction.[40]

The NMS also emphasizes the criticality of working with a variety of organizations. "It is imperative that our Joint Forces also enhance their ability to operate in consonance with other US government agencies, and with Non-governmental Organizations (NGOs), International Organizations (IOs), and Private Voluntary Organizations (PVOs) in a variety of settings. The specialized access and knowledge these organizations possess can facilitate prompt, efficient action to prevent conflict, resolve a crisis, mitigate suffering, and restore civil government upon conflict termination. Achieving interagency and civil interoperability through the continuing development of our doctrine and

interagency participation in our training exercises is important to the unity of effort upon which success in many missions depends."[41]

According to the National Military Strategy, fostering relationships is accomplished by peacetime military engagement. "US Armed Forces help shape the international environment primarily through their inherent deterrent qualities and through peacetime military engagement. The shaping element of our strategy helps foster the institutions and international relationships that constitute a peaceful strategic environment by promoting stability; preventing and reducing conflict and threats; and deterring aggression and coercion."[42]

These engagement activities "promote regional stability, increase the security of allies and friends, build coalitions, and ensure a more secure global environment…. Military-to-military contacts with countries that are neither staunch friends nor confirmed foes build constructive security relationships, help to promote the appropriate role of armed forces in a democratic society, and enhance stability."[43]

Application to Environmental Security. The Draft USSOUTHCOM Environmental Security Supplement specifically includes interagency synergy as a regional environmental opportunity.[44] The Supplement also lists "A regional program of military to military engagement on environmental issues that cooperates with appropriate interagency, NGO, PVO and international organizations"[45] first in its vision statement. When asked to distinguish between USSOUTHCOM work and other organizations, six of nine Delphi experts emphasized cooperation with other organizations rather than attempting to draw isolated lines of responsibilities.[46] Obviously, the value of cooperative engagement has not been lost on environmental security experts.

The reasons are simple. First, one organization cannot possibly address all the national security concerns in today's globalized world. "Perhaps the central intellectual paradox in the formulation of the concept of national security is that it must account for the gradual erosion of sovereignty characteristic of the "post-war" era of interdependence. No one nation can surmount effectively problems of the environment…."[47] Second, "synergies can be developed between the agencies to leverage the limited engagement resources and the limited resources of the engaged countries."[48] Third, the joint efforts (with host nation involvement) can more accurately determine the countries' highest priorities and, together, the group can move in one direction vice multiple, conflicting directions. Fourth, a joint cooperative atmosphere emphasizes the unique characteristics of each organization and reduces the possibility that military members would be tempted to be converted into environmental authorities.

The risk of environmentally-driven conflict also emphasizes the importance of cooperation, as argued by Jeff Stark. "Contemporary threats to security are rarely localized in their effects, linking the life-chances and living conditions of a vast array of workers, consumers, and families in Latin and North America. In sum, the reciprocal effects of interdependence spin a web of relationships that do not eliminate conflict but progressively raise the costs of 'self-interested' behavior, thereby strengthening over time the logic of cooperation."[49]

The size and composition of the team depends on the objective. For environmental security, an issue of truly international proportions, the team may consist of IGOs, NGOs, PVOs, foreign countries' state departments and militaries, various universities and research organizations, and U.S. agencies. Because of the avenues available to non-DoD

organizations, such as trade, economics, and academia, the organizations' capabilities reach into areas such as economic development that USSOUTHCOM cannot, and should not, touch.

Colonel Alan Moloff described the particular expertise other U.S. departments and agencies can provide to the joint team. "These other sources could provide individuals trained in the many disciplines that interact in the environmental security arena and resources for the engagement mission. Many of these departments and agencies practice environmentally related skills on a daily basis as part of their performance of engagement-type missions in support of U.S. strategic objectives. For example, within the Department of State (DOS) the U.S. Agency for International Development (USAID) performs a number of engagement missions throughout the AOR and the world. These focus on numerous environmentally related issues including agriculture, potable water, public health, technology and economic development."[50] Additionally, USAID has partnered with NGOs and PVOs that can assist, augment and facilitate engagement missions. "Many of these organizations would be receptive to conducting 'joint' activities with the military, as the military can offer technical and logistical support that is often beyond the capabilities of these organizations."[51]

Cooperative efforts with federal agencies have challenges, however. Interagency coordination, "within the context of Department of Defense involvement, [is] the coordination that occurs between elements of the Department of Defense and engaged US Government agencies, non-governmental organizations, private voluntary organizations, and regional and international organizations for the purpose of accomplishing an objective. The primary challenge of interagency operations is to achieve unity of effort

despite the diverse cultures, competing interests, and differing priorities of the participating organizations, many of whom guard their relative independence, freedom of action, and impartiality. Additionally, these organizations may lack the structure and resources to support extensive liaison cells or integrative technology."[52]

Another challenge is determining which organization should be in charge of the particular action. According to Donna Lee Van Cott in her paper for the North-South Center, "It is unclear to senior officials at the multilateral institutions which agency in the U.S. government is formulating policy with respect to environmental cooperation in the Western Hemisphere. And, given the diversity of U.S. agencies working to implement the environmental initiatives, it is difficult for countries in the hemisphere and NGOs in Washington, D.C., to identify key players on particular issues. Currently, USAID headquarters in Washington, D.C., and its missions throughout Latin America are the outreach arm for all U.S. programs on the environment."[53]

In addition to international organizations and U.S. agencies, universities and private organizations are conducting valuable research on environmental issues and their connection to conflict and national security. As mentioned earlier, research organizations such as the North-South Center, RAND Corporation, and universities, which generated most of the data for the descriptive study portion of this research, could improve USSOUTHCOM's ability to implement its environmental security strategy. For example, "The mission of the North-South Center is to promote better relations and serve as a catalyst for change among the United States, Canada, and the nations of Latin America and the Caribbean by advancing knowledge and understanding of the major political, social, economic, and cultural issues affecting the nations and peoples of the

Western Hemisphere."[54] Incorporating the North-South Center's unique expertise into USSOUTHCOM's activities can yield significant benefits. Also, developing a relationship with organizations within the environmental community may reduce tension between the military and these organizations.

Additional benefits of cooperative efforts include: clarifying lines of responsibility between USSOUTHCOM and other organizations, as identified by one of the Delphi experts; mutual exchange of organizational activities in an effort to gain synergies and reduce interference; and increased interoperability. "With the desire to stand up more forces from Latin American countries to help carry out more international peacekeeping and disaster relief, it is important that these militaries are interoperable with US forces. While interoperability is generally focused on communication, equipment, and other systems, there is recognition that the concept must also be present in management practices in areas such as environment, safety and health."[55]

According to a Delphi expert, the objective in these relationships should be

> seeking and coordinating activities that enhance partner nations' abilities to be good users of their respective environments and the global commons – **in the context of what military forces are equipped (hard-, soft- and "wet"-ware) to do. Key resources are the skills of active and reserve personnel who can be drawn upon to train others….** USSOUTHCOM is **but one of many players** whose programs can be additive. It is not necessarily A or THE key player. There may not be a KEY player for the US. Environmental issues are so pervasive to human physical and social life that a full court press by all possible players is an appropriate model. US military resources can have great role model influence on their counterparts elsewhere to encourage other militaries to perform environmentally sensibly in their nations. [emphasis in original][56]

Lastly, another Delphi expert hoped that "the lines between these groups should at some point merge together, even as their missions differ. That is to say that USSOUTHCOM needs to be a partner there for the long-term, to work with these

agencies in preventing the problems that lead to conflict. It does mean expertise in areas somewhat foreign to the military, but also an understanding on their part of the role that the military plays. With political sensitivity an issue, these efforts should be low-key and long-term."[57]

Educate and Train. To effectively implement this strategy, the education levels of the host nation, IGO, NGO, and PVO personnel, and the U.S. military must be raised. All members of the team must be aware of the other members' expertise and accomplishments.

Education of host nation personnel was listed as a challenge by USSOUTHCOM.[58] Conversely, education and training was listed by four Delphi experts as one of the most important aspects of USSOUTHCOM's future environmental security strategy.[59] The possible education topics are endless, including planning and conducting military activities in an environmentally sensitive manner, environmentally safe operating procedures for military base operations, and technology transfers.

From the host-nation educational perspective, one Delphi expert specifically suggested training in the ability to deal with hazardous materials/wastes, air pollutants, and sewage. "The capacity and capability not only enables the countries to minimize, store, and treat their own wastes, but also prevent international exploitation of the country as a 'dumping zone.'"[60] Another Delphi expert advocated a "train the trainer" approach, possibly within particular regions, with lead "trainer" countries selected based on environmental progress, experience, and expertise.[61] This avenue would secure a sense of ownership in the training process and leverage limited USSOUTHCOM resources.

This education and training effort should not only be for Latin American personnel, however. It is also important for USSOUTHCOM to be properly trained in such areas as international and state environmental laws and regulations. As mentioned by one Delphi expert, compliance with these rules will "enhance access to air, land, and sea in [the] SOUTHCOM AOR. The US military must be able to carry out its missions throughout the region. Ensuring that we understand and follow domestic and international environment, safety and health treaties, laws, regulations, etc. will enhance our ability to utilize allied air space, bases, and territorial waters when required to do so. Furthermore, by enhancing our allies' capabilities in managing environment, safety and health issues, the public perception of the military should be relatively positive when we may be required to utilize their space."[62]

Another important education area for the U.S. military is the relationship between non-military factors and environmental issues. These issues include economics, trade, and education (particularly in women). If the major factors surrounding environmental security are understood by all organizations, the strategies implemented by those organizations should be less conflictive and more productive.

Share Technology. The USSOUTHCOM Draft Environmental Security Supplement specifically lists information and expertise sharing in such areas as waterway development, ecosystem management, biodiversity and sustainable development.[63] Earlier in this chapter, I mentioned the use of military-specific assets for joint military/environmental purposes. These are only a few of the possible technology sharing opportunities.

Additionally, joint war games are a form of technology sharing. During a Naval War College war game, environmental stress was a surprise factor in conflict. "In the Asian energy exercise, for example, the most salient point to emerge from the day-long discussion is that environmental security, as a byproduct of the search by Asian nations to use energy differently, could emerge as a serious U.S. national issue in the 21st century…."[64] Similar exercises are planned to include international security implications of environmental issues. This type of exercise could also be run for Latin American countries.

Robin Rosenberg suggests the following strategies for changing technology to protect the environment. Clearly, these strategies could be topics of discussion during technology-sharing discussions.

> Sustainable production and consumption practices involve energy and natural resource flows and uses, cleaner production processes, distribution, logistics, and waste management. In other words, technological development and efficiency in economic and social policymaking is a must.
>
> From pollution control to pollution prevention: Pollution prevention focuses on eliminating waste before its creation. As with total quality management, pollution prevention strategies depend on continuous efforts to reduce waste and energy use. This transformation is driven by a compelling logic: Pollution prevention pays! Emerging global standards for environmental management systems have created strong incentives for companies to develop such capabilities. As governments, consumers, and companies in emerging economies realize the competitive benefits for international trade using raw materials and resources more efficiently, the ranks of those developing the technology and know-how for cleaner production methods and of those applying them will continue to grow.
>
> Production management: This strategy focuses on minimizing not only pollution from manufacturing but also all environmental impacts associated with the full cycle of a product through design for environment (DFE)….
>
> Clean technologies and eco-efficiency: The existing technology base in many industries is not environmentally sustainable. Clean technologies

> are needed in the emerging economies of Latin America and the Caribbean; current product and process technologies should be replaced with new, cleaner ones.
>
> Thus, pollution prevention, product cycle management, clean technologies and eco-efficiency all move enterprises and governments toward sustainability and a triple-win scenario.[65]

In addition to sharing military technology, USSOUTHCOM can take advantage of its military-to-military relationships and act as a conduit between Latin American militaries and U.S. research organizations. An example of the type of technology that could be useful to Latin America is RAND's work on the transition to sustainable waste management which takes a simulation gaming approach to waste management.[66] The work was discussed in Chapter 4 and explores how the application of policy levers can manipulate supply and demand in sustainable waste management. Another possibility is RAND's article on electric power, also discussed in Chapter 4.[67] In the electric power article, recommendations include incorporating infrastructure costs in new capacity investment decisions, accelerating private sector participation, use of low-emissions technologies, and various incentives to reduce pollution.

Attend and Sponsor Environmental Conferences. One of the mediums for raising the education levels of all team members and developing/improving USSOUTHCOM's relationships with other organizations is to attend their environmental conferences and invite the organizations to conferences sponsored by USSOUTHCOM. In addition to discussing specific environmental issues, these conferences could serve as a forum on the roles and responsibilities of each organization, thereby clarifying any potential gray areas.

The National Military Strategy encourages military to military engagement activities of this type. "Engagement activities, including information sharing and contacts between

our military and the armed forces of other nations, promote trust and confidence and encourage measures that increase our security and that of our allies, partners, and friends. By increasing understanding and reducing uncertainty, engagement builds constructive security relationships, helps to promote the development of democratic institutions, and helps keep some countries from becoming adversaries tomorrow."[68]

Conclusion

In this chapter, I proposed a strategy—engage in traditionally military functions--for the implementation of USSOUTHCOM's environmental security plan. The strategy was based on the results of both methodologies.

Although four of six Delphi experts believed Latin America would be receptive to a USSOUTHCOM environmental security strategy, the command's approach would be the determining factor. A jointly-developed, "helping" strategy with measured, cooperative steps would instill a more positive reaction than one that smacks of "we know best."[69] Therefore, I recommend USSOUTHCOM's final strategy be developed jointly with Latin American country involvement.

Lastly, I attempted to determine a measurement system to assess a return on investment for USSOUTHCOM's environmental security engagement activities. Unfortunately, the results of my research do not lead me to a consensus on any measurement system. The factors involved in environmental degradation/resource scarcity, and the possible conflict and negative impact on national security, are so complex that USSOUTHCOM's activities could not be solely and directly tied to a change in the degradation, scarcity, conflict, and national security.

However, some "smaller level" indices may be measured. One Delphi expert suggested the following:

1. All ESH engagement activities should be tracked on a central database. This database should get into enough detail that it identifies environment, safety and health related engagement that may be embedded in a larger training exercise or engagement activity.
2. Develop a policy for environmental security engagement.
3. Integrate ESH concepts into all engagement activities. Importantly, this should be shared with the Services to help get this into overall Service policy at Pentagon.
4. Provide appropriate trip reports, information papers, conference/workshop proceedings, etc. up chain of command.
5. Develop environment, safety and health protocols for each country that can be used by our own forces in deployment situations, as well as by the individual country militaries to establish their own programs. It is important to note that many of the Latin American countries have developed extensive environment, safety and health-related regulations. Our forces need to be aware of them on deployments. Maintenance and updates on these protocols could be under the authority of the State Guards assigned to a given country.
6. Monitor individual militaries implementation of their own environment, safety and health laws into military policy and regulations.[70]

I believe this is a good start. Again, the final product should be jointly developed with the proper Latin American representatives.

Notes

1 Appendix C, Delphi Responses, Round 2, Question 2, Comment 3.

2 The White House, *A National Security Strategy for a New Century,* December 1999, 11.

3 Appendix B, Delphi Responses, Round 1, Question 2, Response 1.

4 Appendix B, Delphi Responses, Round 1, Additional Response 1.

5 Appendix C, Delphi Responses, Round 2, Question 5, Comment 5.

6 Jeffrey Stark, "Rethinking Security in the Americas," *North-South Issues (Democratization),* (The Dante B. Fascell North South Center, University of Miami, September 1992), 4.

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9 "Synthesis Report of Latin America Consultations, Rio + 5," 26 February 1997, 13; on-line, Internet, 24 August 2000, available from http://www.ecouncil.ac.cr/rio/regional/america/amlateng.htm.

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23 Ibid., 32.

24 Brian R. Shaw, "When Are Environmental Issues Security Issues?" 8; on-line, Internet, 6 December 2000, available from http://wwics.si.edu/organiza/affil/WWICS/PROGRAMS/DIS/ECS/report2/shaw.htm.

25 Ibid.

26 Stark, McNeil, and Bryan, *Environmental Stresses,* (The Dante B. Fascell North-South Center, University of Miami, October 1999), 32-33.

27 Scott Pace, Kevin M. O'Connell and Beth E. Lachman, *Using Intelligence Data for Environmental Needs, Balancing National Interests,* RAND Report MR-799-CMS, (RAND, Santa Monica, Calif: RAND 1997), 1.

28 Scott Pace, Kevin M. O'Connell and Beth E. Lachman, *Using Intelligence Data for Environmental Needs, Balancing National Interests,* RAND Report MR-799-CMS, (RAND, Santa Monica, Calif: RAND 1997), 4.

29 "U.S. Relaxing Rules on Sale of Satellite Photos," Washington Post, 16 December 2000.

30 Robert E. Jarrett and William H. Forester, "Application of Military Technology to Environmental Clean-Up, (Draft)" (Army Environmental Policy Institute, 25 February 1994), section 2.0.

31 Appendix B, Delphi Responses, Round 1, Question 6, Response 4.

32 Appendix B, Delphi Responses, Round 1, Question 5, Response 3.

33 LTC Timothy R. Rensema, *Environmental Security Engagement: A Role for the Reserve Component,* (U.S. Army War College, Carlisle Barracks, PA, n.d.), 24-25.

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42 Ibid.

43 Ibid.

44 *United States Southern Command Environmental Security Supplement to USCINCSO Theater Engagement Plan (Draft),* 7.

45 Ibid., 8.

46 Appendix B, Delphi Responses, Round 1, Question 2.

47 Stark, "Rethinking Security in the Americas," (The Dante B. Fascell North South Center, University of Miami, September 1992), 4.

48 Appendix B, Delphi Responses, Round 1, Question 2, Response 6.

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58 *United States Southern Command Environmental Security Supplement to USCINCSO Theater Engagement Plan (Draft),* 5.

59 Appendix B, Delphi Responses, Round 1, Question 5.

60 Appendix B, Delphi Responses, Round 1, Question 1, Response 6.

61 Appendix B, Delphi Responses, Round 1, Question 3, Response 1.

62 Appendix B, Delphi Responses, Round 1, Question 1, Response 1.

Notes

63 *United States Southern Command Environmental Security Supplement to USCINCSO Theater Engagement Plan (Draft),* 11.

64 "Divergent Groups View U.S. Security in New Way," *Defense* News, 4 December 2000.

65 Robin L. Rosenberg, *Environmentally Sound Trade Expansion in the Americas: A Hemispheric Dialogue,* (The Dante B. Fascell North-South Center, University of Miami, July 2000), 42.

66 Robert J. Lempert and William Schwabe, *Transition to Sustainable Waste Management, A Simulation Gaming Approach,* RAND Report MR-183-EAC, (Santa Monica, Calif: RAND, 1993), xi.

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68 Department of Defense, *National Military Strategy,* (Washington, D.C.: Office of the Joint Chiefs of Staff, 1997), n.p.; on-line, Internet, 8 December 2000, available from http://www.dtic.mil/jcs/core/nms.html.

69 Appendix B, Delphi Responses, Round 1, Question 7.

70 Appendix B, Delphi Responses, Round 1, Question 8, Response 3.

Appendix A

Methodology

The mind is but a barren soil; a soil which is soon exhausted, and will produce no crop, or only one, unless it be continually fertilized and enriched with foreign matter.

—Sir Joshua Reynolds

Introduction

I chose to employ two separate methodologies in conducting this research—a descriptive study and a Delphi Survey. In the descriptive study, I conducted an exhaustive review and analysis of existing literature to determine the following:

1. How population growth, globalization, and conflict contribute to environmental degradation/resource scarcity
2. How environmental degradation/resource scarcity impacts environmental security and, possibly, U.S. national security
3. How the U.S. uses the economic, political, and military instruments of power to enhance environmental security
4. The critical obstacles facing USSOUTHCOM implementation of an environmental security supplement for Latin America

The purpose of the Delphi Survey is more narrowed, focusing only on USSOUTHCOM's role in environmental security, recommended country and project priorities, perceived Latin American reaction, and possible means of measuring return on investment. The Delphi data is based on the opinions of experts in environmental and/or Latin American affairs rather than being based on published documents. The analysis of

the information from both methodologies yielded a recommended strategy to overcome the obstacles identified in Chapter 6.

Descriptive Study

Chapters 2-5 of this paper flow from the points listed above based on the objective of the descriptive study -- to learn the who, what, when, where, and how of a topic.[1] In a descriptive study, "the researcher seeks to make a profile of a group of problems, persons, or events. Such studies may be only one variable frequency distributions, or they may involve bivariate or multivariate relationships. The descriptive study is popular in business research."[2]

The descriptive study, in this case, consisted of review of current literature. Because world conditions and politics change so quickly, all literature before 1991 was excluded—only the period after the demise of the Soviet Union was included. Within the 1991 to 2000 timeframe, documents were obtained from an internet bibliography search of the RAND Corporation and Air University's database using environment and Latin America as search words and a literature search of the Dante B. Fascell North-South Center publications. Other documents were obtained from literature referenced in the RAND and North-South Center publications, and from references in documents provided by experts consulted in the Delphi Survey. From the internet, I also obtained copies of the U.S. National Security Strategy, National Military Strategy, Executive Order 12114 (Environmental Effects Abroad of Major Federal Actions), Department of Energy (DOE) and Department of Defense environmental security information, Joint Vision 2020, and the National Defense University's report on the Quadrennial Defense Review 2001

issues. Lastly, I searched the Organization of American States web site for environmental security publications.

Delphi Survey

To increase the rigor of this research, I also solicited expert opinions concerning USSOUTHCOM's role and mission regarding U.S. environmental security, the experts' perceived critical obstacles to executing this mission, and suggested strategies to facilitate mission success. The process used in solicitation of the experts' opinions was the Delphi Method or Technique—a form of survey. The Delphi Technique was invented in the 1950s to estimate the probable effects of an all-out atomic bombing attack on the U.S. but has since been used many times to address research problems similar to mine. "Delphi may be characterized as a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem."[3] "Briefly, the Delphi Method involves surveying a group of experts for their anonymous ideas and judgments concerning a specific problem or situation. These judgments are then pooled and summarized by a staff group and then returned to the participants. The experts reevaluate their positions on the problem and again respond to the survey questions. After a few rounds of this, a consensus judgment is constructed, one that may become a critical input to the decision process."[4] In this case, the survey consisted of three rounds of questions. In rounds two and three, the responses from previous rounds were anonymously included with the questions when the survey package was sent out.

The Delphi technique was specifically chosen because of its applicability to this particular type of problem and its unique ability to synthesize opinions from a variety of

experts. Linstone and Turoff found the Delphi to be useful in determining advantages and disadvantages of policy options and assessing human motivations, especially for problems that do not lend themselves to precise analytical techniques but, rather benefit from collective, subjective judgments from experts with diverse backgrounds. "When the panel is largely drawn from a single discipline or field of application, the interaction quickly moves out to the ethereal zone instead of enriching the context for action."[5] The Delphi is also applicable when other methods, such as meetings, are too costly, inappropriate, infeasible, or unacceptable due to the need for anonymity or the potential domination of one individual or office.

The Delphi Technique has three distinct advantages over traditional group problem-solving methods. First, experts surveyed remain anonymous. This reduces the effect of the dominant person who may sway the opinions of the other members even though the dominant view may not be correct. Second, the process includes providing controlled feedback to the respondents concerning experts' responses from previous rounds of the technique. Again, the expert is not associated with his or her response. This controlled feedback reduces noise, defined as "irrelevant or redundant material that obscures the directly relevant material offered by participants."[6] Third, in some types of surveys the Delphi Technique enables the researcher to produce a statistical group response. Depending on the survey, this statistic may be the group median, mean or some other representative number, or the survey may not exact a statistical consensus at all. Calculating a group statistic is also possible with other techniques. The advantage of Delphi is there is no pressure to conform to one opinion. A distribution of opinions about the mean, median or consensus may be just as useful to the research.[7]

The personnel solicited were chosen because of their experience and expertise in Latin America and/or environmental security and USSOUTHCOM. Regardless of background and vocation, the contributions are significant in that they provided unique and important perspectives. The selection of experts was a deliberate effort to include a variety of opinions from many levels, thereby instilling additional rigor to a process, which has been criticized by some as lacking rigor.[8] The survey was also conducted in three written rounds. After each of the first two rounds, the responses were consolidated and sent with the surveys to the experts. Questioning the experts on three separate occasions and providing them feedback was done in an effort to "stimulate the experts into taking into due account considerations they might through inadvertence have neglected, and to give due weight to factors they were inclined to dismiss as unimportant on first thought."[9] I, then, compiled the responses and crafted the strategy shown in chapter 6.

Using the Delphi to provide input to a policy decision such as the military's role in environmental security is called, rather appropriately, the Policy Delphi. "The Policy Delphi also rests on the premise that the decisionmaker is not interested in having a group generate his decision; but rather, have an informed group present all the options and supporting evidence for his consideration. The Policy Delphi is therefore a tool for the analysis of policy issues and not a mechanism for making a decision. Generating a consensus is not the prime objective, and the structure of the communication process as well as the choice of the respondent group may be such as to make consensus on a particular resolution very unlikely."[10]

Linstone and Turoff provide examples of the usefulness of Delphi for policy questions. "A policy question is defined here as one involving vital aspects, such as goal formation, for which there are no overall experts, only advocates and referees. Its resolution must take into consideration the conflicting goals and values espoused by various interest groups as well as the facts and staff analyses. It should be clearly understood that Delphi does not substitute for the staff studies, the committee deliberations, or the decision-making. Rather, it organizes and clarifies views in an anonymous way, thereby facilitating and complementing the committee's work."[11]

The list of questions provided to the experts follow:

- What do you perceive is USSOUTHCOM's role in providing environmental security to the United States?
- Where should the line be drawn between work conducted by USSOUTHCOM and other organizations like Save the Children, the United Nations, etc.?
- What countries should USSOUTHCOM engage with first?
- Which environmental protocol (air, water, solid waste, hazardous waste, etc) should be addressed first?
- Given the unique capabilities and talents of the U.S. military, what do you think the most important aspects of USSOUTHCOM's strategy should be regarding environmental security?
- What do you think are the three top projects USSOUTHCOM should work on?
- How do you think the governments and peoples of the Latin American countries will react to the strategy and projects described above?
- Once the priorities and strategy are established, how would you recommend measuring the progress of USSOUTHCOM in their environmental security efforts?

Sources of Error

The Respondent. Since the Delphi Survey is the measurement tool, both systematic and random error may occur. This error may come from four possible sources; the respondent, the situation, the measurer, and the instrument.[12]

> The respondent may be reluctant to express strong negative feelings or may have little knowledge about [the subject] but be reluctant to admit ignorance. This reluctance can lead to an interview of 'guesses.'
>
> Respondents may also suffer from temporary factors like fatigue, boredom, or anxiety about some other matter; these limit the ability to respond accurately and fully. Hunger, impatience at having been interrupted, or general variations in mood may also have an impact.[13]

In the Delphi Technique, because a small pool of experts were chosen, and the opportunity provided to clarify any ambiguity by asking me questions, "guessing" should be minimized. Additionally, the 10 days provided to respond to the questions (with leeway granted upon request) should eliminate the temporary factors. Therefore, respondent error should be minimized.

The Situation. Situational factors address the environment or conditions in which the survey is given. "Any condition that places a strain on the interview can have serious effects on the interviewer-respondent rapport."[14] In this research, the survey respondent is allowed to complete the survey in any environment he or she chooses, hence eliminating the situational cause of error.

The Measurer. The measurer may also be a source of error. "The interviewer can distort responses by rewording, paraphrasing, or reordering questions."[15] Any change in presentation or execution of the survey, or in processing the results, may cause errors to be introduced to the research. This factor is specifically addressed and minimized in the Delphi Technique. Although summarization and paraphrasing is permitted in the Delphi Technique, primarily if the number of experts and the length of their responses become unwieldy, no changes were made to the responses when they were sent back out to the experts. Additionally, the questions were asked in a written, not verbal, format, with

consistent order and verbiage in all cases. So, no error on the part of the measurer existed during the research.

The Instrument. Finally, the measurement instrument (Delphi Survey) may cause error in two major ways. It may be too confusing and ambiguous, with "leading questions, ambiguous meanings, mechanical defects such as inadequate space for replies, response choice omissions, and poor printing…."[16] Or it may not explore all the potentially important issues.

The goal in preparing the survey is to ensure the questions and the entire package is clear to the respondent. In this case, military and civilian personnel reviewed the package for clarity. Additionally, the familiarity of the experts with the subject, along with the ample opportunity during this process to ask me questions eliminated potential confusion and minimized the instrument source of error.

Required Characteristics of the Delphi Survey

After addressing and minimizing all the sources of error described above, the Delphi Survey and the responses must contain three specific characteristics—validity, reliability, and practicality. "Validity refers to the extent to which a test measures what we actually wish to measure. Reliability has to do with the accuracy and precision of a measurement procedure….Practicality is concerned with a wide range of factors of economy, convenience, and interpretability."[17]

Validity. There are two types of validity—external and internal. External validity refers to the ability of the findings to be generalized across different persons, situations, and times. In other words, are the findings applicable outside the specific research scenario? Internal validity is the ability of the instrument (Delphi Survey) to measure

what I want it to measure.[18] In this case, does the survey actually measure the opinions of the experts on the role of USSOUTHCOM in the execution of environmental security strategy?

I believe the external validity of the research to be high. The questions and responses are not so specific as to apply to only one individual and situation for a limited amount of time. Rather, the responses address processes and procedures for, and reactions of, entire cultures, countries, and organizations. Additionally, the research can easily be duplicated for other Unified Combatant Commands and geographical regions using the same questions but, possibly, a different pool of experts. The responses and subsequent strategies may differ, but that is to be expected given the political and economic factors involved in those other regions.

There are three types of internal validity—content, criterion-related, and construct. "The *content validity* of a measuring instrument is the extent to which it provides adequate coverage of the topic under study. If the instrument contains a representative sample of the universe of subject matter interest, then content validity is good." (italics in original)[19] Regarding criterion-related internal validity, "one source suggests that any criterion measure must be judged in terms of four qualities: relevance, freedom from bias, reliability, and availability….A criterion is *relevant* if it is defined and scored in the terms we judge to be the proper measure of … success….*Freedom from bias* is attained when the criterion gives each [person] an equal opportunity to score well….A *reliable* criterion is stable or reproducible….Finally, the information specified by the criterion must be *available*." (italics in original)[20] Lastly, for construct validity, "one may also wish to measure or infer the presence of abstract characteristics for which no empirical validation

seems possible….Even though this validation situation is much more difficult, there still needs to be some assurance that the measurement has an acceptable degree of validity."[21]

The internal validity of the research is also high. The questions asked in the survey adequately cover the topic, the instrument was relevant and reliable, and it was executed in an unbiased manner. Lastly, the information requested (expert opinion) was available.

I believe the survey is valid in all respects. As shown above, every potential source of error was considered, addressed, and minimized before and during the survey process.

Reliability. Reliability is the second required characteristic of the Delphi Survey. "A measure is reliable to the degree that it supplies consistent results….Reliable instruments are robust; they work well at different times under different conditions. This distinction of time and condition is the basis for two frequently used perspectives on reliability—stability and equivalence….A measure is said to be stable if you can secure consistent results with repeated measurements of the same person with the same instrument….This leads to a test-retest arrangement—with comparisons between the two tests to determine how reliable they are….A second perspective on reliability [equivalence] considers how much error may be introduced by different investigators (in observation) or different samples of items being studied…."[22] The reliability of this Delphi Survey was maximized by the use of three distinct rounds of questions, with responses from the previous rounds included in the package provided to the experts in the second and third rounds—similar to the "test-retest arrangement." Therefore, the repetition and analysis by the experts of previous responses maximized the reliability of the instrument.

Practicality. Lastly, the practical aspects of the survey must be addressed.[23] This is usually addressed in terms of economy (what the budget can afford), convenience (easy to administer), and interpretability. In this research, minimal cost is incurred. The survey was sent electronically to the experts. The list of questions is not overly burdensome and should be able to be completed within a few hours. Also, since the experts are giving their opinions on a specific subject, a significant amount of research is not required. All these factors make the survey very practical.

Conclusion

The methods used by the researcher were twofold—a descriptive study consisting of a thorough review of existing literature as it applies to or affects the research questions, and a Delphi Survey soliciting expert opinions on the role of USSOUTHCOM in executing U.S. environmental security requirements. Clearly, one methodology alone would produce usable results. But, the combination of both methods adds significant rigor to the application of the strategies.

In this chapter, the sources of error in the Delphi Survey were discussed, as well as the efforts taken to minimize that error. The required characteristics of the survey were also discussed, as well as efforts to maximize those characteristics.

The combination of the descriptive study and the Delphi Survey will lead to predictions. "Prediction is found especially in studies conducted to evaluate specific courses of action. Prediction involves explicit inference drawing."[24] In this case, the prediction was the successful implementation of the Environmental Security Supplement to USCINCSO Theater Engagement Plan following a recommended strategy.

Notes

1 C. William Emory, *Business Research Methods* (Homewood, Ill.: Richard D. Irwin, Inc., 1985), 69.

2 Ibid., 9.

3 Harold A. Linstone and Murray Turoff, ed., *The Delphi Method, Techniques and Applications* (Reading, Mass.: Addison-Wesley Publishing Company, 1975), 3.

4 Warren B. Brown and Dennis J. Moberg, *Organization Theory and Management* (New York, NY.: John Wiley and Sons,, 1980), 564.

5 Linstone and Turoff, ed., *The Delphi Method,* (Reading, Mass.: Addison-Wesley Publishing Company, 1975), 60.

6 Norman C. Dalkey, *Delphi*, RAND Report AD-660554, (Santa Monica, Calif: RAND, 1967), 3.

7 Ibid.

8 H. Sackman, *Delphi Assessments: Expert Opinion, Forecasting and Group Process*, RAND Report AD-786878, (Santa Monica, Calif.: RAND, 1974), 17.

9 Bernice B. Brown, *Delphi Process: A Methodology Used for the Elicitation of Opinions of Experts*, RAND Report AD-675981, (Santa Monica, Calif.: RAND, 1968), 3.

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11 Ibid., 75.

12 C. William Emory, *Business Research Methods* (Homewood, Ill.: Richard D. Irwin, Inc., 1985), 92.

13 Ibid., 92-93.

14 Ibid., 93.

15 Ibid., 93.

16 Ibid., 93.

17 Quoted by C. William Emory, *Business Research Methods* (Homewood, Ill.: Richard D. Irwin, Inc., 1985), 94.

18 C. William Emory, *Business Research Methods* (Homewood, Ill.: Richard D. Irwin, Inc., 1985), 94.

19 Ibid., 95.

20 Ibid., 96.

21 Ibid., 97.

22 Ibid., 98-99.

23 Ibid., 100.

24 Ibid., 9.

Appendix B

Delphi Responses, Round 1

Note from the author: The responses in Appendices B-D are raw data and appear as sent to me. I made no modifications to grammar and spelling.

General statement from Delphi expert:

To understand SOUTHCOM's role in providing environmental security to the United States, one must understand that there are sound strategic, operational, and tactical reasons for including the mission in the SOUTHCOM AOR.

QUESTION 1

What do you perceive is USSOUTHCOM's role in providing environmental security to the United States?

RESPONSE

Environmental Security (i.e. environment, safety and health) can be utilized as an effective tool for SOUTHCOM to support environmental security for the US.

1. Regional Stability. Environmental security is more and more being recognized as a key aspect in the stability equation for a given country or region. Environmental degradation and threats to human health create sometimes difficult to quantify costs to a country/region's economy. Due to increasing migration and refuge flows into the US could have long-term impacts on our internal stability. Improving quality of life by enhancing environment, safety and health in individual countries throughout the region fully supports the SOUTHCOM role in promoting regional stability, and ultimately US stability.

2. To Strengthen Democracy and the Rule of Law. Related to regional stability, particularly in Latin America, is the respect for elected civilian politicians and the rule of law by Latin American militaries. SOUTHCOM can utilize environment, safety and health laws as a non-threatening means to engage with other militaries to teach and describe the role of the military in a democratic society. It is important that mil-to-mil engagement in this region seek to improve relationships with other government agencies.
3. Interoperability. With the desire to stand up more forces from Latin American countries to help carry out more international peacekeeping and disaster relief, it is important that these militaries are interoperable with US forces. While interoperability is generally focused on communication, equipment, and other systems, there is recognition that the concept must also be present in management practices in areas such as environment, safety and health.
4. Force Health Protection. While this is one key aspect of interoperability it is important enough to deserve separate mention. ESH engagement must have force health protection as its highest priority not only for our own soldiers but for those who may work beside us in multi-lateral operations.
5. Enhance Access to Air, Land, and Sea in SOUTHCOM AOR. The US military must be able to carry out its missions throughout the region. Ensuring that we understand and follow domestic and international environment, safety and health treaties, laws, regulations, etc. will enhance our ability to utilize allied air space, bases, and territorial waters when required to do so. Furthermore, by enhancing our allies' capabilities in managing environment, safety and health issues, the public perception of the military should be relatively positive when we may be required to utilize their space.

RESPONSE

1. The first item is to plan and conduct all mission operations so as: 1) to not unnecessarily damage the environment and 2) to improve it where reasonable. That is, to be an active player within the limits of US policy for the military Services on global environmental management.
2. Within the realms normally viewed as military, USSOUTHCOM should help other nations not damage their stability through environmental mismanagement; or, in cases of deployments to facilitate recovery of damaged environments.
3. USSOUTHCOM "behaviors" would include: avoidance (of unnecessary damage), pro-action (physical assistance, within military charter) and consultation (expert help).

RESPONSE

SOUTHCOM's role in providing environmental security to the US has been marginal at best (perhaps negative). SOUTHCOM should actively integrate multilateral, bilateral, government, NGO, and private sector organizations and interests with the goal of promoting environmental security in the region, which in turn supports US interests of regional stability and all that goes with it. A CINCdom is uniquely qualified to this, the

problem in this AOR is that we are perceived as the interfering, ugly Yankees ….read that our misguided drug policy for example.

RESPONSE

First of all, the National Military Strategy, which is one of the drivers for the SOUTHCOM strategy says that the CINC may, at his option, include the environment in his engagement plans. It is not a directed mission.

In your definition of environmental security, you split it into two pieces. I see SOUTHCOM's role in the first half – "…environmental factors behind potentially violent conflicts." SOUTHCOM should work with the militaries in the region to identify these environmental factors and work with them to reduce or eliminate potential conflicts. This is part of our mission of engagement. The second half of your definition – "the impact of global degradation on the well being of societies and economies" implies relationships that are more in the purview of the State Department. This is the classic "protect the rainforest" discussion. Without the President and the Congress direction, we don't do that!

RESPONSE

- helping to implement ecological restoration projects
- responding to catastrophes (i.e., hurricane Mitch)

RESPONSE

SOUTHCOM plays a pivotal role in providing environmental security to the US since it is responsible for engagement with countries on our southern border and in our hemisphere. SOUTHCOM should be working with those countries to develop the capacity and capability to properly deal with hazardous materials/wastes, air pollutants, and sewage. The capacity and capability not only enables the countries to minimize, store, and treat their own wastes, but also prevent international exploitation of the country as a "dumping zone." SOUTHCOM should also be assisting the countries to protect and conserve their natural resources so other countries do not see them as vulnerable to exploiting/forcefully taking those resources or desire to insert themselves into the country to "protect" those resources.

RESPONSE

Environmental security ensues through the prevention of conflict that might directly or indirectly involve us. Conflict over resources is as old as history, but these contexts are rather short to medium term in perspective. Conflict resulting from long-term forces of degradation or water over-use are more long-term in nature and are new only because

they are occurring much more quickly than before. Pollution as a conflict of conflict will be a new issue.

QUESTION 2

Where should the line be drawn between work conducted by USSOUTHCOM and other organizations like Save the Children, the United Nations, etc.?

RESPONSE

SOUTHCOM will have three environmental security roles. One is the strict mil-to-mil engagement on environment, safety and health to improve military interoperability. The second will be a democratic, nation-building approach that should be done in cooperation with the State Department and will seek to include other government agencies, international government agencies, and the non-government agencies. The third role will be in the areas of peacekeeping and disaster relief in which the CINC is likely to be given command authority over regional assets. In this final role, the CINC should reach out to include IGOs and NGOs where appropriate to get the job done.

Now, with that said, SOUTHCOM must be wary of how they work with Latin American militaries to ensure their environment, safety and health responsibilities do not bleed over into civilian government authority. While this has been a concern of the US State Dept when it came to mil-to-mil ESH engagement, it should be noted that numerous Latin American militaries are already responsible for some environmental-related issues such as forest and coastal management, for example. This is not unlike the US Army Corps of Engineers' responsibilities in their civil works programs. It is important that we always stress the rule of law and civilian control of the military. One way to enhance this concept and make sure that bleed over does not occur is to bring the EPA, Dept. of Interior, and other US Federal into the cooperation to establish a government-to-government approach.

RESPONSE

Applying these criteria will naturally answer this question to a great extent:

1) The work (especially financial outlays) should be within the ROE of an operation and support fulfillment of an actual operation objective, or
2) Provide training and/or research for US military personnel to better fulfill their normal programs (current or projected).
3) Expertise and/or hardware should be normally organic to US military Services.

There is plenty of work that can be done with and through national ministries of defense and in complementary concert with other entities without duplication.

RESPONSE

I would like to see more recurring lines of cooperation among the NGOs and SOUTHCOM – environmental security conferences, Joint planning ….. to see areas where synergies could occur.

RESPONSE

SOUTHCOM has a military mission. Our relationships are necessarily militarily focused. Military-to-military engagement is where we draw the imaginary line. The exception to that is when the Dept. of State requests (and funds) the activity or the President directs.

RESPONSE

These groups conduct relief activities over long periods of time. The US military is an "action-oriented" organization that is probably best suited to 1) respond to crises, & 2) help other groups, such as the ones listed above, implement their pre-existing plans during times of special need.

RESPONSE

There is no clear line between the US military, other US government agencies, or NGOs. In fact, synergies should be developed between the agencies to leverage the limited engagement resources and the limited resources of the engaged countries. Additionally, by working together, all of the agencies can determine the engaged countries highest priorities and then assist them moving in the right direction as quickly as possible rather than having multiple efforts heading in different directions that may conflict with other engagement activities. It is also important to determine how the different organizations can compliment each other. SOUTHCOM should not necessarily be the leader, but from my experience, we have the organizational capabilities, knowledge, and the immediate resources to be more effective as interagency team leaders.

RESPONSE

The lines between these groups should at some point merge together, even as their missions differ. That is to say that USSOUTHCOM needs to be a partner there for the long-term, to work with these agencies in preventing the problems that lead to conflict. It does mean expertise in areas somewhat foreign to the military, but also an understanding

on their part of the role that the military plays. With political sensitivity an issue, these efforts should be low-key and long-term.

QUESTION 3

What countries should USSOUTHCOM engage with first?

RESPONSE

In order to get the biggest bang for the buck, SOUTHCOM should look into feasibility of developing a "train the trainers" approach with certain countries within the various similar regions of Latin America which are capable of doing so. For example, Argentina and Chile are two militaries that could be brought up to speed on environment, safety and health in the Southern Cone and possibly other countries in Central and South America. In general, however, Latin America may present some problems with this approach due to numerous historical border disputes, encroachment and illegal activities in border areas, political instability in certain regions, and existing long-term historical distrust between many countries. It may therefore be prudent to explore getting the military mission under the Organization of American States to pick up the banner on environment, safety and health cooperation as a peaceful, non-threatening method to increase engagement. It is my impression that the OAS is a terribly under utilized organization and forum and this might be an excellent opportunity for them.

In the Andean Region, it is difficult to select one country due past border disputes, internal political turmoil, and general instability at this time. Of course, Ecuador has been our long time friend and ally there and possibly cooperation on ESH might be a good way to maintain engagement during a difficult time. The on-going revolution in Colombia combined with the US approach to fighting various drug crops does not make ESH cooperation a good tool for engagement. First, because it would be perceived as dishonest since the US has pushed a major herbicide application campaign that goes against the Colombian Ministry of Environment's desires. (By the way, SOUTHCOM should carry out a risk assessment to determine both short- and long-term environment, health and public affairs issues related to this herbicide campaign. We do not want to get into another agent orange public affairs nightmare ten or twenty years down the road.) Before the current anti-US leadership took hold in Venezuela, that country would have been a good one to approach for working with Northern countries in South America. In regard to Brazil, we need to face Brazil head-on with this issue and focus from both a mil-to-mil approach and why their military should be concerned, and two a civilian government agency cooperative approach. Brazil is concerned with the US pushing these issues, but the dialogue must begin sometime in order to relieve underlying tensions on this topic. Might be better for the CINC to allow an EPA lead on this topic and DOD could attach themselves to a overall government-to-government approach when the time is right. The small countries in the Northeast of South America view environmental security as actual security threats to their borders and not from a regulatory environmental protection viewpoint that tends to exist in the US. These countries simply need small flat bottom boats to get police and soldier into the hinterlands to protect from

encroachment over their borders and illegal mining and logging. SOUTHCOM should work with coast guard and national guard to establish a boat program similar to some DOD boat programs in Africa.

In Central America, it is again difficult to select one military that could take a leadership role in this area. Certainly we are we have ties to Honduras which is one country we should be closely working with on these issues. I think SOUTHCOM needs to weigh the benefits of engaging with each of the Central American countries on an individual basis but do recommend trying to utilize ESH cooperation as an important tool to do this. There are several approaches that could be sought to do this. First, utilize Chile once they are trained up to help with ESH engagement in Central American countries. Also, recommend working with FORSCOM to improve Mexican military ESH standards and begin to utilize them in Central America as well. Finally, work with the EPA, FBI, and other US police organizations to develop EPA-to-MOE/national police-to-police engagement in Costa Rica and Panama. Once these latter relationships are developed, this concept could be furthered in other countries further strengthening civilian authority over these issues.

In the Caribbean, we should leverage from already established ESH cooperative activities with UK and other countries that have interest in the region to develop multi-lateral engagement activities on ESH.

RESPONSE

1) The ones where legitimate, friendly military forces need to develop better citizen support in order to solve other problems, such as Columbia and El Salvador. US environmental security involvement can pay dividends in several directions at once.
2) The ones that have large problems in quantity or size: Argentina, Brazil, Chile, and Mexico. Problems are so massive that major help is needed.
3) The ones where scale factors are too small to permit national militaries to possess the necessary internal expertise to design and start their own environmental management programs – counterparts to US Services' programs: Central America and Caribbean Islands. A little consulting help will go a long way.
4) Others, as resources permit.

RESPONSE

Brazil and Columbia are key countries for engagement

RESPONSE

SOUTHCOM has a theater engagement plan which prioritizes our efforts. In general, we give precedence to countries where we have a significant national interest or they have a powerful need!

RESPONSE

* Nicaragua and Honduras; hurricane Mitch, coupled with massive deforestation, have led to large-scale environmental problems.

*Colombia; massive deforestation resulting from Coca cultivation, & a large flow of refugees in the SE section of the country, will necessitate aid from a wide array of organizations.

RESPONSE

Those in which we have the greatest strategic interests. Those interests may be related to countries holding informal or formal regional leadership positions, countries having a direct geographical impact on the US, or countries into which we wish to gain or maintain access for operational training or initiatives.

RESPONSE

Caribbean:

Haiti: Deforestation is a root cause of social and economic problems

Central America:

Mexico: A decline in arable land and forests in Chiapas remains a problem
Guatemala: Deforestation in Peten and land use is part of conflict there

Andean Ridge:

Colombia: Narco-environmental impacts, trade in timber and gems fuels conflict
Ecuador: Increasing conflict with indigenous people over oil resources

Southern Cone:

None

QUESTION 4

Which environmental protocol (air, water, solid waste, hazardous waste, etc) should be addressed first?

RESPONSE

First, environmental security is more than environmental protection, it is environment, safety and health. Thus, the highest priorities should be placed on those regulatory areas (both domestic and international) that serve the US military by enhancing our own force health protection, and improve interoperability in multi-national operations, and improving access to air, land, and water. Within the overall priority scheme, up front ESH planning for all military operations, from installation management to off-installation military operations should be high on the list. Also, would recommend hazardous material handling, hazardous waste, medical waste, water management, force health protection, explosives safety, aviation safety, safety in weapons systems operation, etc. be in the first tier of priorities. Second tier might include air, solid waste, industrial and workplace safety and occupational health, and other environment, safety and health issues. Recommend the SOUTHCOM ESH communities be brought together to work out the priorities with force health protection, interoperability, and access to air, land, and water being the guiding principles.

RESPONSE

Air and water are the two key priorities

RESPONSE

1) This is less an either/or issue than a "what to do in a given nation" issue. First, environmental management institutions need to be incubated and nurtured to help national militaries do a better environmental job and to help their own societies.
2) Water and hazardous waste (management) are two areas in need of special attention. Needs are so great that anything accomplished will be worthwhile. The US Services have considerable knowledge and technical capability in both areas. The expertise resides in active personnel and Reserve and National Guard personnel (whether from their MOSs or in civilian careers).
3) Water supply and sanitation seem poised for global attention by the UN and many NGOs. SOUTHCOM could be a major contributor to quality of life (ergo, stability) improvements without having to take on the baggage of the coordinating leadership role.

US forces have considerable experience in establishing and running hazardous waste management programs and clean-up programs. They have science, engineering and management expertise and laboratories. Many forms of physical and biological surveillance and analysis products can be used for most of the **[Left unfinished by expert]**

RESPONSE

Water is probably the biggest source of contention at the moment. We are not limited to one activity at a time, so I don't see the value of this question.

RESPONSE

Water quality: many countries are only now starting to develop waste water treatment plants and related facilities.

Reforestation: many sections of Central America and the Andes are probably reaching a critical threshold with respect to deforestation and soil erosion.

RESPONSE

This is fully dependent upon the needs of the country. It is irresponsible of the US, or any other country, to believe we know what is best for another country. The priorities need to be developed cooperatively to mesh our capabilities with their needs.

RESPONSE

This list omits some of the major reasons for conflict that should be part of the purview of SOUTHCOMM and elaborated in official US policy.

The two major areas are:

1. Conflict over Specific Resources (oil or diamonds, for example)
2. Conflict over General Resources (forests of water, for example)

Air pollution is limited to major urban areas in Latin America and water distribution per capita is actually one of the highest of any part of the world.

QUESTION 5

Given the unique capabilities and talents of the U.S. military, what do you think the most important aspects of USSOUTHCOM's strategy should be regarding environmental security?

RESPONSE

INTEGRATION!!! Environment, safety and health should be integrated into everything they do at the strategic, operational and tactical levels. This is to protect our own interests and forces as well as providing the opportunity to share this knowledge, practices, methodologies with the right people at the right time while engaging with other militaries.

Also, SOUTHCOM is already doing some really great environmental security work but sadly it is not well publicized. Both the Army/Air Force Guard and Reserves have been doing much in the Caribbean and Central America for years with engineering units who go down to train, build schools, roads, dig wells, etc. More could be done to ensure that environment, safety and health is integrated into every aspect of these missions and to ensure that appropriate amount of time is taken to discuss and educate the foreign militaries and civilian authorities that also participate in these actions. Strongly recommend having a trained eye review various training operations and bi/multi-lateral exercises to pull out the ESH engagement aspects. One recommendation would be to draw on reserve engineers, civil affairs units to come down and do two week assignments to write up stories on this type of engagement.

Also, the US Army, Corps of Engineers is involved in various projects in Latin America that support environmental security and nation building. In fact, to the best of my knowledge, the COE also has satellite offices in certain countries in Latin America.

Finally, SOUTHCOM should request that the Service component commands in SOUTHCOM AOR maintain a list of experts from their services world-wide that can be drawn upon to support engagement activities. The expert staffs in the various CINC-doms are simply too small to provide the kind of necessary support and technical expertise on the broad range of environment, safety and health issues. Thus, it would be benefits for the CINC's to promote Component Commands seek support from other service sources. Furthermore, from a larger DOD perspective, there are added benefits of providing opportunities such as these to our own CONUS-based military and civilians to increase pool of talented, experienced individuals who can serve on CINC staffs when jobs open up, on deployments, etc.

RESPONSE

Stressing peacetime, positive contributions that military services can provide.
Maximize non-threatening activities.
Train the leaders/managers.
Training via: expert assistance by technically proficient uniformed personnel to demonstrate that it isn't sissy.
Training via: teams of uniformed and civilian personnel.
Training via: work/study internships in the US at selected policy and program management organizations, labs, Major Commands and installations. Not short visits, but 1-6 month working experiences.
Joint host nation/US projects, not US turnkey projects.
Use environmental health protection projects of personal benefit to the national forces to build interest, an ethic and momentum.

RESPONSE

The most important aspect of SOUTHCOM's strategy regarding environmental security should be leadership that works with people and organizations in the AOR to improve living conditions, responds efficiently with other players to environmental crises, and generally and genuinely demonstrates that their environmental security interests are consistent with the US'.

RESPONSE

Maintaining our military to military relationships. Any activities we pursue should be through military channels. Secondly, we recognize that the US military has a lot of environmental expertise. Where we can help a country in the AOR to avoid the expensive mistakes we made, we should offer our services.

RESPONSE

Developing an environmental data base concerning all Latin American countries; this would facilitate rapid responses to future crises. Remote sensing, GIS, and various scientific studies would all be useful here.

RESPONSE

Education and joint research and development.

RESPONSE

The military teaches and trains. This is a valuable commodity to them and to those who need these services. Being proactive is preferred, but in some ways more difficult in up-front costs than being reactive.

QUESTION 6

What do you think are the three top projects USSOUTHCOM should work on?

RESPONSE

1. Integrate ESH into all SOUTHCOM mission areas and at all levels: strategic, operational, and tactical
2. Establish policy to focus ESH engagement efforts on force health protection, interoperability, and access to air, land, and sea.
3. Continue to establish State Partnership Program as rapidly as possible and throughout the region. And, ensure National Guard includes safety and health along with their environmental mission in this area. In many ways, the SPP is the perfect program to help push environmental security throughout the region. (as a side thought, has there been any consideration of making the state guards assigned to a given country the de facto executive agent for mil-to-mil and mil-to-civ engagement for that country?)

RESPONSE

Promote renewable energy, change our image through deeds, and reexamine the drug war

RESPONSE

1. Formulating and conducting programs for water conservation and wastewater treatment for national military facilities to build an aura of success on a topic that will also be of direct benefit to their personnel. Then expand to support of national water authority and ministry of health water programs.
2. Establish tight management procedures and methods for military hazardous wastes, other than explosives. Help make national forces role models within their respective countries.
3. Surveying their other nation counterparts for their ideas – perhaps via the American Army Commanders' Conference or similar mechanism. This is needed to avoid excessive paternalism. Items 1. and 2. could be suggested and would probably be high on other nations' lists, anyway.

RESPONSE

First, environmental awareness in the militaries in the AOR. Second, environmental issues discovered by the J-2 where SC military expertise could have a positive impact. Third, using our military engineering assets, (Corps of Engineers, NAVFAC, AFCES, etc.,) look for areas where our technical assistance could be leveraged to resolve potential ES conflicts.

RESPONSE

I) Thousands of refugees are now invading NE Ecuador from the Putumayo province of Colombia. Steps should be taken immediately to ensure that these people are resettled with as little environmental impact as possible.

II) Contain the "Coca deforestation" in SE Colombia (but I'm not sure how!). This area is well known for its biodiversity, and supports approximately 500,000 people. Coca deforestation has proven to be devastating in Peru, and undoubtedly the impacts in Colombia will be far worse.

III) Help countries develop long-term plans for ameliorating water quality.

RESPONSE

1. Develop basic information system for tracking environmental issues and security in USSOUTHCOMM. Work with other "COMMS" in this regard. This could incorporate efforts underway at the Center for Army Analysis.
2. Work on developing expert systems to help in decision-making and implementation.
3. Develop some pilot projects and attempt to measure success.

RESPONSE

Low-key, long-term technical assistance in conjunction with other types of groups would be sensitive, but achievable from a political standpoint. There would be some exceptions, i.e., Colombia, but feasible in most places.

QUESTION 7

How do you think the governments and peoples of the Latin American countries will react to the strategy and projects described above?

RESPONSE

I think most governments will be skeptical (as another person has indicated). They will likely believe that we are patronizing them or seeking influence. However, I doubt we will develop the political vision and integrity to effectively facilitate the kinds of strategies outlined by the other respondents to your question except for mil to mil environmental security initiatives - which are good things to do but are a small piece of the environmental security pie for the southcom aor.

RESPONSE

Probably reasonably well, IF not leaped into as pre-determined gringo programs.

RESPONSE

I believe the reaction would be positive.

RESPONSE

Most countries will react positively, if approached from a "help" perspective. Negative reactions will occur where we appear to be the "we know best" big brothers. Particular sensitivities exist in the Southern Cone countries where we appear threatening (Brazil).

RESPONSE

Each government will respond differently, and the individual responses will be highly unpredictable. Most, I imagine, will be somewhat skeptical.

RESPONSE

Some countries will (and have) react(ed) favorably. If we force ourselves upon a country, rather than simply making it know what US capabilities are in this area and let them come to us when they are ready, we are in jeopardy of alienating the countries and losing the opportunity to develop regional partnerships.

QUESTION 8

Once the priorities and strategy are established, how would you recommend measuring the progress of USSOUTHCOM in their environmental security efforts?

RESPONSE

Through a combination of measures of effectiveness, such as access to safe to water, deforestation rates/levels, infant mortality, renewable energy displacement..... Also, the quality of the partnerships (governments, ngo, development banks, private sector ....) established to promote quality of life and stability in the aor.

RESPONSE

That's tough. One might try to determine to what extent a national military force moves from being an environmental problem to neutrality to being part of the national solution.

One could use reporting and statistics to assess the amount of ES work that a national force starts to do voluntarily up to and beyond US stimulation and involvement.

One could assess the degree to which non-military agencies seek alliance with the national militaries on ES projects or give approbation to their ES work.

RESPONSE

There are several ways.

1. All ESH engagement activities should be tracked on a central database. This database should get into enough detail that it identifies environment, safety and health related engagement that may be embedded in a larger training exercise or engagement activity.
2. Develop a policy for environmental security engagement
3. Integrate ESH concepts into all engagement activities. Importantly, this should be shared with the Services to help get this into overall Service policy at Pentagon.
4. Provide appropriate trip reports, information papers, conference/workshop proceedings, etc. up chain of command.
5. Develop environment, safety and health protocols for each country that can be used by our own forces in deployment situations, as well as by the individual country militaries to establish their own programs. It is important to note that many of the Latin American countries have developed extensive environment, safety and health-related regulations. Our forces need to be aware of them on deployments.

Maintenance and updates on these protocols could be under the authority of the State Guards assigned to a given country.

6. Monitor individual militaries implementation of their own environment, safety and health laws into military policy and regulations.

RESPONSE

They say that imitation is the sincerest form of flattery. I would look for “imitators” of US military environmental programs and call them successes. We should develop goals and objectives prior to starting any significant new effort just for this purpose.

RESPONSE

I have no answer to this question at this time. My research often concerns the evaluation of environmental policy, but I still have more questions than answers.

RESPONSE

Simple measures of merit don't easily apply to international environmental cooperation. At the onset of the cooperation the US needs to unilaterally and cooperatively develop objectives for the engagement and then annually review those objectives to determine attainment. The unilateral objectives, sometimes referred to as the "quid," may be as simple as staying engaged or as complex as maintaining access at particular training ranges to enable joint training and interoperability or exchanging key R&D data.

RESPONSE

As part of the database and pilot projects, a system could be put in place. These should focus on environmental indicators (and their social and economic relation) and indicators for conflict or security.

ADDITIONAL RESPONSES

RESPONSE 1

Rather than respond to the individual questions, I hope you don't mind if —like the response above— I make a few more general comments. My perspective differs in perspective from the opinions advanced by the military officers who have responded. In fact, my general reaction probably will strike you—and them—as "over the top" or perhaps representative of "out of the box" thinking. As such, my comments may not be very useful to your study. In any cases, I tend to think that SOUTHCOM should NOT have much of a mission in the area of environmental security in Latin America. In fact, have profound reservations about the notion of "environmental security" as a field in which military involvement is appropriate or helpful. I fear that the militarization of such questions probably will only have extremely unfortunate, in fact counterproductive, consequences by diverting scarce resources (including top-level executive attention of civilian authorities) away from real problems/solutions. In my view, based on 3 decades of observation as an academic, military involvement in substantially non-military matters promotes a problematic "role expansion" and incursion into areas that are properly civilian. The intrusion of the military mind-set ("national security," "national interests," definition of "enemies" and "allies," etc.) all too frequently leads to a dangerous narrowing of vision with disastrous consequences (e.g., Plan Colombia style screw-ups) that can only undercut genuine efforts to resolve or ameliorate the problems. This occurs when civilian authorities, expertise, agencies both in the US and in the region are shunted aside and military officers become involved. Regardless of how well trained they are, military officers normally don't have the training, background, and temperament to engage intellectually with intractable social and economic problems of the sort related to "environmental security." Nor do they command the resources required to address these problems. Finally, the military generally operates in a "can-do" posture with a time-frame totally unsuited for the resolution of problems that may take years or decades. In short, as the excellent quote from Ambassador McNeil underscores, "not all security problems have military solutions." I would go even further: many/most security problems not only don't have military solutions, but attempts to invent military solutions frequently have the unintended consequences of significantly aggravating the problem, thereby undermining more promising efforts. Sorry to be so negative.

RESPONSE 2

Dear Kevin:

More than answer your questions I want to make a couple of comments that I think will be important for your research and will help you to identified the answers.

As Frank McNeil said in his paper, "not every security problem has a military solution" and the misunderstanding of that is creating tense relation between environmentalists and military.

Environmental security needs coordination between authorities, not to convert military into environmental authorities.

Eric Dannenmaier from the North South Center in Washington D.C. to whom you should call, is developing a very clear chart of what environmental security is. He said that Resource Denial, Resource Depletion and Resource Degradation aggravating by Natural conditions or natural disasters will create in sequence instability - dispute - violent conflict and human harm and the big question is how the legal framework or the institutions may intervene to avoid that results or that escalation or sequence.

With that on mind the question is how the military could intervene to avoid that result. First to correct the problem of Resource Denial, Resource Depletion or Degradation and after that to know what will be its institutional role to avoid the sequence of impacts.

In that sense there are different questions regarding how the military will avoid the causes:

> - For example in a country as in Peru Resource degradation could be produced because the use of pesticides in the fight against coca crops. In this case how the military could avoid this cause but also how the military could make to avoid the impact. What role they should have in case of instability or dispute. There is not a clear response of that but I think that kind of answers are important to try to obtain some conclusions.
>
> I hope this comments will be useful for you.

Appendix C

Delphi Responses, Round 2

Note: one expert did not have any comments on the other responses for now except that they reflect a diversity of opinion.

Another expert had the following suggestion: There is, however, one (question) that I would add: Given that the number of environmental disasters may increase sharply in Latin America during the next two decades, how should the military select the most exigent cases? Given the finite quantity of resources that our military possesses (both $$ and people), how shall we pick which situation we respond to when there are several disasters at once. How do we evaluate the gravity of each situation in the event of "triage"?

QUESTION 1

What do you perceive is USSOUTHCOM's role in providing environmental security to the United States?

COMMENT

I think there is a clear preference among the respondents to pursue micro level efforts but avoid macro level engagements, especially since the macro level policy framework remains fuzzy.

COMMENT

1) USSOUTHCOM has to set a good example in its environmental planning and management of operations, in ways visible to other nations. That will help other nations grasp that military forces need not be unnecessarily destructive.
2) The other is in seeking and coordinating activities that enhance partner nations' abilities to be good users of their respective environments and the global commons – **in the context of what military forces are equipped (hard-, soft- and "wet"-ware) to do. Key resources are the skills of active and reserve personnel who can be drawn upon to train others.**
3) USSOUTHCOM is **but one of many players** whose programs can be additive. It is not necessarily A or THE key player. There may not be a KEY player for the US. Environmental issues are so pervasive to human physical and social life that a full court press by all possible players is an appropriate model. US military resources can have great role model influence on their counterparts elsewhere to encourage other militaries to perform environmentally sensibly in their nations.

COMMENT

Referring to the response:

> *RESPONSE*
> First of all, the National Military Strategy, which is one of the drivers for the SOUTHCOM strategy says that the CINC may, at his option, include the environment in his engagement plans. It is not a directed mission.
>
> In your definition of environmental security, you split it into two pieces. I see SOUTHCOM's role in the first half – "…environmental factors behind potentially violent conflicts." SOUTHCOM should work with the militaries in the region to identify these environmental factors and work with them to reduce or eliminate potential conflicts. This is part of our mission of engagement. The second half of your definition – "the impact of global degradation on the well being of societies and economies" implies relationships that are more in the purview of the State Department. This is the classic "protect the rainforest" discussion. Without the President and the Congress direction, we don't do that!

The comment is:
On the contrary, environmental engagement is within the NSS, thus the President has given direction. Congress has reviewed the DoD international environmental security activities through both the annual report to Congress and occasional hearings and has not

directed it be stopped (thus implicit approval). DoD is available to DoS to execute particular missions for which we have the capabilities; and we have been called on to do so in several cases.

COMMENT

I basically agree with all the responses. There are two factors that limit the ability of the CINC to do everything that he might like in the way of environmental security. First, is the reality of funding. SOUTHCOM is the smallest and least funded of the geographical CINCs. The majority of the CINC funds are provided by the counterdrug program, whether you agree with it or not. There are not a lot of resources available for this mission.
The second factor that he must deal with is that SOUTHCOM is a military organization and must relate all activities to a military role. That said, the CINC can and should work with other agencies and NGOs to find synergies to improve the environment in the AOR.

COMMENT

I definitely agree that environmental degradation will increase the likelihood that countries will go to war in the region. Analysts in the US military should interact with individuals in Latin Militaries, training them to identify potentially conflictual situations related to the environment. Believe me, I have known a number of officers in the Ecuadorian military, and they do not consider environmental problems to be related to military issues. Given cultural differences that exist between "them" and "us," I am not certain that any of us can really change this situation. But perhaps if the "environmental division" of the US military is given high visibility, then Latin American militaries may change as well.

It is true that Latin America should not be regarded as a "dumping zone," but I do not believe that the US military can be of assistance here.

QUESTION 2

Where should the line be drawn between work conducted by USSOUTHCOM and other organizations like Save the Children, the United Nations, etc.?

COMMENT

I think most agree that some level of cooperation is needed with NGOs, but there are clear differences as to what auspices this should operate under. What is role of military in these matters and what is foreign policy reflected by Department of State are key issues of line definition.

COMMENT

It's a wide gray line, until smart minds consult and experiment. SOUTHCOM should not dilute its military readiness by drifting off in odd directions; however, there are probably gaps that can be filled with USSOUTHCOM and Service Commands' knowledge and hard resources. Cooperative gap analysis with partner nations and other organizations can find those gaps. This should not be a unilateral sifting or a knee-jerk program. Long ago, we learned that such things as natural disaster relief and clinic/road/school building were and remain suitable engagement areas. It's now a matter of jointly identifying other activities by military resources that can serve to reduce intranational stresses (from environmental mis-use) in order to lessen the likelihood of future socio-political ruptures and military excursions and resulting US security problems that have and can arise.

COMMENT

Referring to the response:

> These groups conduct relief activities over long periods of time. The US military is an "action-oriented" organization that is probably best suited to 1) respond to crises, & 2) help other groups, such as the ones listed above, implement their pre-existing plans during times of special need.

The comment is:
This short-term approach has caused problems in the past. The US cultural perspective in business is come in, do what we need to and then move on. Many other business cultures revolve around long-term personal relationships and commitments. If DoD doesn't show the long-term commitment to these countries, we lose their goodwill and trust. This case

has the potential to impact these countries joining us as coalition partners or providing operational and training access.

COMMENT

There appears to be massive agreement here. SOUTHCOM should partner with other organizations and agencies. By coordinating activities, we can stretch everyone's resources.

COMMENT

I definitely disagree with the respondent who claims that "there is no clear line between the US military.....NGSs". Each of these groups has developed its own "organizational culture," and I don't believe that the military would work well with groups like The Nature Conservancy - the modis operandi, aims, and missions of the military differ tremendously from those of other groups; I'd say that the US military should interact primarily with other militaries, responding to special crises that have overwhelmed the citizens of these countries.

QUESTION 3

What countries should USSOUTHCOM engage with first?

COMMENT

A nice summary table would show these interests across respondents. Colombia seems to show up in every response, but given the record of the drug war and its role in environment this may also be the most difficult area to handle.

COMMENT

1) The first engagements should chosen to be fairly easy; that is, pick some low-hanging fruit, but treat them (or parts) explicitly as environmental actions: e.g., continue such things as Mitch response, El Salvador war amelioration (environmental aspects) and de-mining related work in Central America.
2) Deliberately select projects in key countries where preventive action still has likelihood for success and significant US security values. For example: Mexico is moving toward the brink of environmental, hence social, collapse in several regions; Chile has difficult challenges of high pollution concentrations and remote resources being harmfully exploited. Brazil could do so much damage on its lands that it could bring several neighbors down with it in coming decades. In nations where the military wields disproportionate power, US military models could have disproportionate spill over onto civilian sector environmental management.

[I suspect you'd like a specific list from us. I wish I could give it. Such a list should be the product of considerable study by people with comparative national environmental and political info. In terms of methodology, this question probably should have been approached by hitting us with a full list of countries and a matrix of their env. issues for us to score for US ES criticality, military fit and likely success. That would have put us in a forced judgment situation, but tempered by making lots of small judgments that could be treated statistically. But, time runneth.]

COMMENT

Interesting variety of responses. It points out that there are a lot of problems out there that need to be addressed. I think there are a couple of correct answers: first, those that have the greatest strategic interest and are high on the CINC's priority list and second, those that are willing to work with us. Not always congruent.

COMMENT

*The Brazilians really resent "gringo interference"!!!

*In Haiti, deforestation is not the root cause of social and economic problems - the opposite is true!

QUESTION 4

Which environmental protocol (air, water, solid waste, hazardous waste, etc) should be addressed first?

COMMENT

I think the correct word here should be media. Protocol suggests some arrangement that might deal with the problems in the media. It does not seem to matter which seems to be most important.

COMMENT

This has to be answered with consideration for national/local needs and the ways US military can be most responsive without harming its own readiness. These are the three fields I think hold the most promise for early successes and longterm value, in that the results can be immediately beneficial, prevent long term harm and fit the US military bag of tools.

1) Water is a field in which a wide variety of engineering and preventive health resources have capability and need training opportunities. Contrary to the implied message of one of the responses, water adequacy and quality for consumption and sanitation are serious problems that can be used to help bring military and civilian organizations together to improve lives and social stability. There may be, in the near future, a major global effort in this regard that USSOUTHCOM could join. I can't get more specific, but wheels seem to be slowly grinding into motion.

2) Hazardous substances (beneficial uses) and wastes are fields for which US military resources have considerable expertise that could be tapped by USSOUTHCOM.

3) Aforestation (opposite to deforestation) is a field of considerable importance to some Central American nations, and the US military civilian force has a lot of expertise

COMMENT

Lack of wastewater treatment is probably the biggest environmental health issue in the region. It is also one of the easiest technically to resolve. I understand the other issues raised about air pollution as well as the comment about the needs of the individual country. From a strategic perspective water supply and wastewater treatment are

probably the right answers. We can address other issues concurrently, such as hazwaste and air pollution, but water issues have the most immediate impact.

COMMENT

All of these responses are true for some areas. Reforestation projects, I will emphasize, are very much worthwhile, as they help solve many problems at once. But would USAID be better suited to working with this issue? Not having served in the military, I can't really say.....

QUESTION 5

Given the unique capabilities and talents of the U.S. military, what do you think the most important aspects of USSOUTHCOM's strategy should be regarding environmental security?

COMMENT

Transfer of training and skills is the best military asset and the greatest need in those countries.

COMMENT

There are several elements to the strategy:

Evaluation (joint with other nations) of ES gaps suitable for military participation.
Determining which skills & equipment can be shared within readiness requirements.
Determining with Intell organizations which nations will profit from ES help.
[CIA and Army ODCSOPS and Center for Army Analysis have been researching methods to accomplish this]
Negotiate non-threatening relationships.
Project activities should seek to –
Train the trainer (executive on down) in mitigating/preventing env. damage
Role model corporate good citizen behavior by military forces
Establish/strengthen national military env. management programs of their own
Establish strong GIS and similar data management for the environment
Initiate/strengthen rural and urban water supply programs
Strengthen hazardous material/and waste programs.
Strengthen aforestation programs
Strengthen democratization by the foregoing

COMMENT

The strategy shouldn't be a generic, one size fits all approach. It should look at the level of engagement already in place, the need to expand that engagement (strategic access, the ability of the country to participate as a coalition partner both in the region and internationally, and developing goodwill), and the conditions of the country's environmental security program. Based on the responses to these questions, USSOUTHCOM should then shape an appropriate response using a crawl, walk, run approach, i.e., start with foundational exploratory meetings and information exchanges,

move through expert exchanges and then on to cooperative research and development with the final step being evolving into a regional or international multilateral program.

COMMENT

I think that the SOUTHCOM unique capability is the relationships we have developed with the leadership in most of the countries in the AOR. If we build on these relationships, we can be most effective.

COMMENT

I agree with respondent #2 - strengthen military-to-military relationships. In many countries, the military controls or produces all other geographic resources, such as maps, air photos, satellite images, many environmental resource books, etc. The military, therefore, is often the best organization within the Latin countries to empower other groups such as NGOs, who have more of the scientific expertise necessary to solve the problems.

And I'll reiterate my response from "round1:" top military officers should empower those who would like to create an environmental data base. In Ecuador, I can certainly say, if the top military officers mandate changes, they happen!

QUESTION 6

What do you think are the three top projects USSOUTHCOM should work on?

COMMENT

The consensus suggests
1. Something on Colombia
2. Inventory of assets
3. Tracing of trends and events.

COMMENT

I support the comment: "First, environmental awareness in the militaries in the AOR. Second, environmental issues discovered by the J-2 where SC military expertise could have a positive impact. Third, using our military engineering assets, (Corps of Engineers, NAVFAC, AFCES, etc.,) look for areas where our technical assistance could be leveraged to resolve potential ES conflicts."

I don't have sufficient knowledge to name specific top projects. I'm limited to generalities, though some of the ones listed by others make some sense. This needs an interactive consultation between geographers, environmentalists and environmental health experts.

COMMENT

Those projects should be dependent upon the priority countries and country priorities from the analysis discussed above. Looking for a generic approach without analysis is dangerous.

COMMENT

Quite a diversity of opinion! Using the crawl, then walk philosophy, the first thing we must do is develop relationships internally (US) and externally (NGOs and other countries) then proceed from there. I am not aware of any significant issue where SOUTHCOM could unilaterally step in and attempt to solve any environmental problem – without causing many more problems.

COMMENT

All answers provided are fine.

QUESTION 7

How do you think the governments and peoples of the Latin American countries will react to the strategy and projects described above?

COMMENT

This is going to be a sensitive issue no matter what approach is taken. Slow and steady is the best approach.

COMMENT

In some places, it will be with some suspicion, that's why the partnering military force needs to be a key player in each nation involved. In some places it will be with a sense of relief that more work is being done. The offers have to be gently made. Initial projects have to be easily accepted and of high success probability. Not even major planning should be attempted until some partner nations are on board with the idea. Anything that seems to be a secret before bursting forth will raise destructive resistance. Start easy somewhere and let others ask to be included.

COMMENT

All appear to be in agreement!

COMMENT

All three answers are reasonable. Responses of the Latin government will depend on past experiences, and each one will be unique.

QUESTION 8

Once the priorities and strategy are established, how would you recommend measuring the progress of USSOUTHCOM in their environmental security efforts?

COMMENT

Measurement should be part of a larger system of tracking, evaluating, and other tools for decision making.

COMMENT

The rate and depth of new requests, especially those with significant host nation counterpart resourcing. "I would look for "imitators" of US military environmental programs and call them successes."
Intelligence analyses of changing social, health and environmental conditions.
[Beware of anyone demanding to know what conflict or social disruption has been prevented. Rarely can we know what would have been in an alternate future.]

COMMENT

Environmental Security is kind of a negative thing. If you do a good job, nothing happens! I think you can measure failure easier than success. Conflicts over resources, pollution, or other environmental issue denotes a failure. Harmony indicates success!

COMMENT

I still have no intelligent response to this question. One key point, tho, is that the amount of time required to measure the success of a given program will vary widely among regions and projects. I believe that the military will have to hire a large group of high-powered environmental consultants to help with the evaluation phase. This is certainly the strategy that USAID has adopted.

Appendix D

Delphi Responses, Round 3

I received four responses during Round 3 of the Delphi Survey.

COMMENT

Kevin,
Though I didn't anticipate having a "violent" objection to one of the comments, as it turned out, there was one that I found to be not only behind the times in its thinking, but outright insulting to the military. I have been thinking for some time how one could respond without lowering themselves to that level…then I figured that maybe the best thing was not to respond…but it has been gnawing at me ever since reading it and the somewhat pompous tone of the individual who wrote it who actually believes they are somehow on the "cutting edge."

COMMENT

Question 1. The comment indicating that SOUTHCOM has to set a good example regarding environmental security is correct; however, we are doing just the opposite of that. Our counterdrug policy and actions are having significant destabilizing effects environmentally and politically. This is further clarified by the other comment stating that the majority of cinc funds are for the counterdrug problem; indicating that not only have we made environmental security a low priority, but we have made degrading the environment a high priority as a matter of policy and resources.

Question 2. The comment stating that we do not work well with NGO like the Nature Conservancy is not always true. Domestically the Army has been highlighting its improving relations with NGO. For example, last year the Army had a speaker from the Nature Conservancy at its Senior Environmental Leadership Council meeting, who spoke at length concerning how DOD and the Conservancy were working together to advance good environmental stewardship in the US.

Question 3. I concur with the comment that Brazilians really resent "gringo interference." So do the rest of the countries in the region.

Question 4. I agree with the comment that USAID would be better suited than SOUTHCOM to working with projects such as reforestation; however these kinds of projects contribute to regional stability and preventive defense. Since the new Administration wants more shaping and influencing as a matter of preventive defense, increasing SOUTHCOM's partnering with other US governmental organizations like USAID, seems to be timely.

Question 5. I concur with the comments that our best military assets for transfer are training and skills, and that engagement with other countries in the cincdom should take a crawl, walk, … approach.

Question 6. The comment that we should do "something in Columbia" is accurate – as long as it is anything but what we are doing.

Question 7. A slow and steady approach is appropriate, we should take tangible steps to replace our 'gringo' footprint with a more "we share the hemisphere together" footprint.

Question 8. Increased use of analysis is timely.

Add on question. Through increased partnering with other governmental organizations (US and regional) and NGO, we can better leverage SOUTHCOM's scarce resources to respond (and prevent) environmental disasters. Also, reprogram the counterdrug money to environmental security, it would make environmental disaster response evaluation a less constrained process and better serve US and regional security objectives.

COMMENT

Kevin,

It looks like you're getting some convergence, as well as specifics. I re-read the older material yesterday, then the new input. It looks like you can do a sensible analysis with the combined material. The last round can't stand on it's own, though. It looks like you'll have to pick-up threads from the first round and follow them through; rather like starting with a bunch of threads going into the wide end of a funnel and with some emerging at the small end. I noticed that most initially opposing thoughts became parts of or reconciled in each other by the end. At least you didn't end-up with a set of bitterly acrimonious commenters trying to eat each others' throats!

COMMENT

Author's note: The following comments were taken verbally from a Delphi expert.

First, it is very important to understand that the military in Latin American countries control everything and acts as a "clearing house" for information flow.

Second, in the U.S., when an action is coordinated between the military and another organization, the individual in the military would search for the proper counterpart of relatively equal rank or status to discuss the action. Meetings and tentative agreements on details would be subsequently discussed at higher and higher levels until the final decision was made at the appropriate level. In Latin America the opposite is true. To originate an action requires top-level meetings first. Then the subordinates work out the details. Applying this protocol to USSOUTHCOM's role in environmental security means the CINC must meet with the senior military official in a Latin American country to discuss and agree on the relative importance of, and strategy to implement, environmental security first. Then, the subordinates can meet on the details of the strategy.

Appendix E

Delphi Analysis

Introduction

In this chapter I analyze the expert responses from the Delphi Survey. I received responses from nine of 12 solicited experts. One expert answered all but one question. Two experts did not answer the questions specifically, rather chose to provide a general narrative comment. For both of these experts, the comment applied to question one primarily and for one expert, partially to question two. I did not apply the responses from these two experts to any other questions. Where possible in this appendix, I will attempt to consolidate the responses if commonalities occur. This was not possible for every question. In those cases, I simply provided the responses as given to me by the experts.

It is important to note that the experts chosen were from a limited pool of people I knew or developed professional relationships with over the course of this research. A different pool of experts would probably result in different results. The results I obtained are not necessarily representative of any one group. I chose experts from a research organization, the U.S. Department of Defense, and academia to gather information from a broad range of experience and expertise.

Lastly, for clarity, minor edits were made to the responses where necessary if the error was obvious and did not change the meaning of the experts' responses.

QUESTION 1: What do you perceive is USSOUTHCOM's role in providing environmental security to the United States?

RESPONSES

Seven of the nine experts saw a definite role for USSOUTHCOM in providing environmental security to the United States with one expert stating, "To understand SOUTHCOM's role in providing environmental security to the United States, one must understand that there are sound strategic, operational, and tactical reasons for including the mission in the SOUTHCOM AOR." One expert went into excellent detail on his/her suggestions.

1. Regional Stability. Environmental security is more and more being recognized as a key aspect in the stability equation for a given country or region. Environmental degradation and threats to human health create sometimes difficult to quantify costs to a country/region's economy. Increasing migration and refugee flows into the US could have long-term impacts on our internal stability. Improving quality of life by enhancing environment, safety and health in individual countries throughout the region fully supports the SOUTHCOM role in promoting regional stability, and ultimately US stability.
2. To Strengthen Democracy and the Rule of Law. Related to regional stability, particularly in Latin America, is the respect for elected civilian politicians and the rule of law by Latin American militaries. SOUTHCOM can utilize environment, safety and health laws as a non-threatening means to engage with other militaries to teach and describe the role of the military in a democratic society. It is important that mil-to-mil engagement in this region seek to improve relationships with other government agencies.
3. Interoperability. With the desire to stand up more forces from Latin American countries to help carry out more international peacekeeping and disaster relief, it is important that these militaries are interoperable with US forces. While interoperability is generally focused on communication, equipment, and other systems, there is recognition that the concept must also be present in management practices in areas such as environment, safety and health.
4. Force Health Protection. While this is one key aspect of interoperability it is important enough to deserve separate mention. ESH engagement must have force health protection as its highest priority not only for our own soldiers but for those who may work beside us in multi-lateral operations.

5. Enhance Access to Air, Land, and Sea in SOUTHCOM AOR. The US military must be able to carry out its missions throughout the region. Ensuring that we understand and follow domestic and international environment, safety and health treaties, laws, regulations, etc. will enhance our ability to utilize allied air space, bases, and territorial waters when required to do so. Furthermore, by enhancing our allies' capabilities in managing environment, safety and health issues, the public perception of the military should be relatively positive when we may be required to utilize their space.

Other experts recommended implementing ecological restoration projects, responding to catastrophes (i.e., hurricane Mitch), and developing "the capacity and capability to properly deal with hazardous materials/wastes, air pollutants, and sewage. The capacity and capability not only enables the countries to minimize, store, and treat their own wastes, but also prevent international exploitation of the country as a 'dumping zone.' SOUTHCOM should also be assisting the countries to protect and conserve their natural resources so other countries do not see them as vulnerable to exploiting/forcefully taking those resources or desire to insert themselves into the country to "protect" those resources."

One expert believed USSOUTHCOM had not done well in the past with environmental security, but still recommended a military role. "SOUTHCOM's role in providing environmental security to the US has been marginal at best (perhaps negative). SOUTHCOM should actively integrate multilateral, bilateral, government, NGO, and private sector organizations and interests with the goal of promoting environmental security in the region, which in turn supports US interests of regional stability and all that goes with it. A CINCdom is uniquely qualified to this, the problem in this AOR is that we are perceived as the interfering, ugly Yankees ….read that our misguided drug policy for example."

One expert believed, based on direction from the National Military Strategy, USSOUTHCOM's environmental role was the CINC's prerogative "The CINC may, at his option, include the environment in his engagement plans. It is not a directed mission." Also, based on the definition provided in the survey, this expert also saw USSOUTHCOM's role in the "'environmental factors behind potentially violent conflicts.' SOUTHCOM should work with the militaries in the region to identify these environmental factors and work with them to reduce or eliminate potential conflicts. This is part of our mission of engagement. The second half of your definition – 'the impact of global degradation on the well being of societies and economies' implies relationships that are more in the purview of the State Department. This is the classic 'protect the rainforest' discussion. Without the President and the Congress direction, we don't do that!"

Lastly, one expert listed three roles for USSOUTHCOM—setting an example, assistance, and specific behaviors:

1. The first item is to plan and conduct all mission operations so as: 1) to not unnecessarily damage the environment and 2) to improve it where reasonable. That is, to be an active player within the limits of US policy for the military Services on global environmental management.
2. Within the realms normally viewed as military, USSOUTHCOM should help other nations not damage their stability through environmental mismanagement; or, in cases of deployments to facilitate recovery of damaged environments.
3. USSOUTHCOM "behaviors" would include: avoidance (of unnecessary damage), pro-action (physical assistance, within military charter) and consultation (expert help).

One expert said, "Environmental security ensues through the prevention of conflict that might directly or indirectly involve us. Conflict over resources is as old as history, but these contexts are rather short to medium term in perspective. Conflict resulting from long-term forces of degradation or water over-use are more long-term in nature and are

new only because they are occurring much more quickly than before. Pollution as a conflict of conflict [*sic*] will be a new issue."

One expert was against military involvement in environmental security.

> In any case, I tend to think that SOUTHCOM should NOT have much of a mission in the area of environmental security in Latin America. In fact, I have profound reservations about the notion of 'environmental security' as a field in which military involvement is appropriate or helpful. I fear that the militarization of such questions probably will only have extremely unfortunate, in fact counterproductive, consequences by diverting scarce resources (including top-level executive attention of civilian authorities) away from real problems/solutions. In my view, based on 3 decades of observation as an academic, military involvement in substantially non-military matters promotes a problematic 'role expansion' and incursion into areas that are properly civilian. The intrusion of the military mind-set ('national security,' 'national interests,' definition of 'enemies' and 'allies,' etc.) all too frequently leads to a dangerous narrowing of vision with disastrous consequences (e.g., Plan Colombia style screw-ups) that can only undercut genuine efforts to resolve or ameliorate the problems. This occurs when civilian authorities, expertise, agencies both in the US and in the region are shunted aside and military officers become involved. Regardless of how well trained they are, military officers normally don't have the training, background, and temperament to engage intellectually with intractable social and economic problems of the sort related to 'environmental security.' Nor do they command the resources required to address these problems. Finally, the military generally operates in a 'can-do' posture with a time-frame totally unsuited for the resolution of problems that may take years or decades. In short, as the excellent quote from Ambassador McNeil underscores, 'not all security problems have military solutions.' I would go even further: many/most security problems not only don't have military solutions, but attempts to invent military solutions frequently have the unintended consequences of significantly aggravating the problem, thereby undermining more promising efforts.

Another expert did not specifically have a recommended role for the military, but rather, suggested a process-oriented, analytical look at environmental issues should take place first. Then, the military can determine its role. He, too, quoted Ambassador McNeil's caution that, "not every security problem has a military solution …" and added that "the misunderstanding of that is creating tense relations between environmentalists

and military." This expert also cited some work underway by Eric Dannenmaier, of the North-South Center in Washington D.C. Although this is not primary research, the words are enlightening and, therefore, included.

> He [Dannenmaier] said that resource denial, resource depletion and resource degradation, aggravated by natural conditions or natural disasters, will create, in sequence, instability - dispute - violent conflict and human harm, and the big question is how the legal framework or the institutions may intervene to avoid those results or that escalation or sequence. With that in mind the question is how the military could intervene to avoid that result. First, to correct the problem of resource denial, resource depletion or degradation and, after that, to know what will be its institutional role to avoid the sequence of impacts.
>
> In that sense there are different questions regarding how the military will avoid the causes:
>
> - For example in a country as in Peru Resource degradation could be produced because the use of pesticides in the fight against coca crops. In this case how could the military avoid this cause, but also, how could the military … avoid the impact? What role they should have in case of instability or dispute? There is not a clear response to that but I think those kind of answers are important to try to obtain some conclusions.

ROUND 2 COMMENTS

Five experts commented in round 2 on the statements the experts made in round 1 for this question. The first expert analysis indicated different levels exist in which the engagement activities can take place. "I think there is a clear preference among the respondents to pursue micro level efforts but avoid macro level engagements, especially since the macro level policy framework remains fuzzy."

The second expert emphasized two main aspects of USSOUTHCOM's engagement activities—example setting and coordination--in the following three points:

> 1) USSOUTHCOM has to set a <u>good example</u> in its environmental planning and management of operations, in ways visible to other nations. That will help other nations grasp that military forces need not be unnecessarily destructive.

2) The other is in seeking and coordinating activities that enhance partner nations' abilities to be good users of their respective environments and the global commons – **in the context of what military forces are equipped (hard-, soft- and "wet"-ware) to do. Key resources are the skills of active and reserve personnel who can be drawn upon to train others.**

3) USSOUTHCOM is **but one of many players** whose programs can be additive. It is not necessarily A or THE key player. There may not be a KEY player for the US. Environmental issues are so pervasive to human physical and social life that a full court press by all possible players is an appropriate model. US military resources can have great role model influence on their counterparts elsewhere to encourage other militaries to perform environmentally sensibly in their nations.

The third expert disagreed with a specific response from round 1:

RESPONSE

First of all, the National Military Strategy, which is one of the drivers for the SOUTHCOM strategy says that the CINC may, at his option, include the environment in his engagement plans. It is not a directed mission.

In your definition of environmental security, you split it into two pieces. I see SOUTHCOM's role in the first half – '…environmental factors behind potentially violent conflicts.' SOUTHCOM should work with the militaries in the region to identify these environmental factors and work with them to reduce or eliminate potential conflicts. This is part of our mission of engagement. The second half of your definition – 'the impact of global degradation on the well being of societies and economies' implies relationships that are more in the purview of the State Department. This is the classic 'protect the rainforest' discussion. Without the President and the Congress direction, we don't do that!

The expert's comment indicated USSOUTHCOM does, indeed, have the Presidential and Congressional direction, and therefore, the responsibility:

On the contrary, environmental engagement is within the NSS, thus the President has given direction. Congress has reviewed the DoD international environmental security activities through both the annual report to Congress and occasional hearings and has not directed it be stopped (thus implicit approval). DoD is available to DoS to execute particular missions for which we have the capabilities; and we have been called on to do so in several cases.

The fourth expert basically agreed with all the responses but stated limitations on USSOUTHCOM's role. The functions must fit within the allocated budget and must be related to a military role.

> There are two factors that limit the ability of the CINC to do everything that he might like in the way of environmental security. First, is the reality of funding. SOUTHCOM is the smallest and least funded of the geographical CINCs. The majority of the CINC funds are provided by the counterdrug program, whether you agree with it or not. There are not a lot of resources available for this mission.
>
> The second factor that he must deal with is that SOUTHCOM is a military organization and must relate all activities to a military role. That said, the CINC can and should work with other agencies and NGOs to find synergies to improve the environment in the AOR.

The fifth expert definitely agreed that environmental degradation would increase the likelihood that countries will go to war in the region. Therefore, U.S. military-to-military engagement becomes even more important.

> Analysts in the US military should interact with individuals in Latin Militaries, training them to identify potentially conflictual situations related to the environment. Believe me, I have known a number of officers in the Ecuadorian military, and they do not consider environmental problems to be related to military issues. Given cultural differences that exist between 'them' and 'us,' I am not certain that any of us can really change this situation. But perhaps if the 'environmental division' of the US military is given high visibility, then Latin American militaries may change as well.
>
> It is true that Latin America should not be regarded as a 'dumping zone,' but I do not believe that the US military can be of assistance here.

ROUND 3 COMMENTS

I received four responses during Round 3 of the Delphi Survey. Three of the experts wrote general comments that I will show analyzed here.

The first expert did not believe another expert's comment in round 1 or 2 on the military involvement in environmental security was correct.

The second expert believed, based on his review of the data, that sufficient information existed to complete a good analysis in my research.

The third expert provided general comments for the implementation of an environmental security strategy.

> First, it is very important to understand that the military in Latin American countries control everything and acts as a "clearing house" for information flow.
>
> Second, in the U.S., when an action is coordinated between the military and another organization, the individual in the military would search for the proper counterpart of relatively equal rank or status to discuss the action. Meetings and tentative agreements on details would be subsequently discussed at higher and higher levels until the final decision was made at the appropriate level. In Latin America the opposite is true. To originate an action requires top-level meetings first. Then the subordinates work out the details. Applying this protocol to USSOUTHCOM's role in environmental security means the CINC must meet with the senior military official in a Latin American country to discuss and agree on the relative importance of, and strategy to implement, environmental security first. Then, the subordinates can meet on the details of the strategy.

The fourth expert responded directly to question 1. He believed SOUTHCOM should set a good environmental security example, but that the Command was doing just the opposite with its counterdrug program. Because of the amount of resources invested, and because some of the U.S. counterdrug efforts actually degrade the environment, the U.S. has demonstrated, indirectly, that it prioritizes degrading the environment over protecting it.

QUESTION 2: Where should the line be drawn between work conducted by USSOUTHCOM and other organizations like Save the Children, the United Nations, etc.?

RESPONSES

I received seven responses to this question. All but one of the experts emphasized cooperation with other organizations rather than attempting to draw lines of responsibilities. This cooperation would accomplish two purposes: first, it is hoped that synergies would develop between the unique capabilities of each organization and second, the lines between each organizations' duties and responsibilities would become clearer through cooperation. Some examples of cooperation included joint planning and environmental security conferences. "In fact, synergies should be developed between the agencies to leverage the limited engagement resources and the limited resources of the engaged countries. Additionally, by working together, all of the agencies can determine the engaged countries' highest priorities and then assist them moving in the right direction as quickly as possible rather than having multiple efforts heading in different directions that may conflict with other engagement activities. It is also important to determine how the different organizations can compliment each other."

To establish the relationships necessary for environmental security work, two of the experts suggested military-to-military engagements on environmental security issues. One expert specifically drew the imaginary line at military-to-military engagements, with the exception of requests from the Department of State (funded by them) or specific requests from the President. One expert also cited a "democratic, nation-building approach that should be done in cooperation with the State Department and will seek to include other government agencies, international government agencies, and the non-

government agencies." This expert also mentioned USSOUTHCOM's role "will be in the areas of peacekeeping and disaster relief in which the CINC is likely to be given command authority over regional assets. In this final role, the CINC should reach out to include IGOs and NGOs where appropriate to get the job done."

One expert said that environmental security needs to be coordinated between authorities. USSOUTHCOM should not attempt to convert military personnel into environmental authorities.

One expert cautioned that, in USSOUTHCOM's environmental security efforts, they "must be wary of how they work with Latin American militaries to ensure their environment, safety and health responsibilities do not bleed over into civilian government authority. While this has been a concern of the US State Dept when it came to mil-to-mil ESH engagement, it should be noted that numerous Latin American militaries are already responsible for some environmental-related issues such as forest and coastal management, for example. This is not unlike the US Army Corps of Engineers' responsibilities in their civil works programs. It is important that we always stress the rule of law and civilian control of the military. One way to enhance this concept and make sure that bleed over does not occur is to bring the EPA, Dept. of Interior, and other US Federal [*sic*] into the cooperation to establish a government-to-government approach."

One expert stated his/her rationale for distinguishing between the military and other groups. The other groups "conduct relief activities over long periods of time. The US military is an "action-oriented" organization that is probably best suited to 1) respond to

crises, & 2) help other groups, such as the ones listed above, implement their pre-existing plans during times of special need."

One expert suggested USSOUTHCOM has the "organizational capabilities, knowledge, and the immediate resources to be more effective as interagency team leaders," although USSOUTHCOM should not necessarily be the leader.

One expert suggested "the lines between these groups should at some point merge together, even as their missions differ. That is to say that USSOUTHCOM needs to be a partner there for the long-term, to work with these agencies in preventing the problems that lead to conflict. It does mean expertise in areas somewhat foreign to the military, but also an understanding on their part of the role that the military plays. With political sensitivity an issue, these efforts should be low-key and long-term."

One expert supplied criteria for what should and should not be included in USSOUTHCOM's work:

1. The work (especially financial outlays) should be within the ROE of an operation and support fulfillment of an actual operation objective, or
2. Provide training and/or research for US military personnel to better fulfill their normal programs (current or projected).
3. Expertise and/or hardware should be normally organic to US military Services.

ROUND 2 COMMENTS

Five experts also responded in round 2 to question two. The first expert summarized the areas of agreement among the experts--some level of cooperation is needed with NGOs—and also summarized the gray areas—the role of the military and the foreign policy advocated by the State Department.

The second expert suggested a means of how to clarify the fog:

> It's a wide gray line, until smart minds consult and experiment. SOUTHCOM should not dilute its military readiness by drifting off in odd

> directions; however, there are probably gaps that can be filled with USSOUTHCOM and Service Commands' knowledge and hard resources. Cooperative gap analysis with partner nations and other organizations can find those gaps. This should not be a unilateral sifting or a knee-jerk program. Long ago, we learned that such things as natural disaster relief and clinic/road/school building were and remain suitable engagement areas. It's now a matter of jointly identifying other activities by military resources that can serve to reduce intranational stresses (from environmental mis-use) in order to lessen the likelihood of future socio-political ruptures and military excursions and resulting US security problems that have and can arise.

The third expert again commented on an expert statement from round 1:

> These groups conduct relief activities over long periods of time. The US military is an "action-oriented" organization that is probably best suited to 1) respond to crises, & 2) help other groups, such as the ones listed above, implement their pre-existing plans during times of special need.

The expert suggested that USSOUTHCOM's focus should extend past the crisis response into long-term commitment:

> This short-term approach has caused problems in the past. The US cultural perspective in business is come in, do what we need to and then move on. Many other business cultures revolve around long-term personal relationships and commitments. If DoD doesn't show the long-term commitment to these countries, we lose their goodwill and trust. This case has the potential to impact these countries joining us as coalition partners or providing operational and training access.

The fourth expert said there appears to be "massive agreement" by the experts to this question. SOUTHCOM should partner with other organizations and agencies on coordinated activities to maximize resource leveraging.

The fifth expert definitely disagreed with the respondent who claims that "there is no clear line between the US military.....NGSs. Each of these groups has developed its own 'organizational culture,' and I don't believe that the military would work well with groups like The Nature Conservancy - the modis operandi, aims, and missions of the military differ tremendously from those of other groups; I'd say that the US military should

interact primarily with other militaries, responding to special crises that have overwhelmed the citizens of these countries."

ROUND 3 COMMENTS

One expert responded directly to question 2. The expert disagreed with the comment that the military does not always work well with NGO like the Nature Conservancy. The expert provided an example of just such cooperation between the Army and the Nature Conservancy.

QUESTION 3: What countries should USSOUTHCOM engage with first?

RESPONSES

Seven experts responded to this question. Columbia seems to be the most popular response to this question, with three of six experts naming this country. The reasons cited include deforestation (two experts) from coca cultivation, large flow of refugees in the southeastern section of the country, narco-environmental impacts, and trade in timber and gems creating the potential to cause conflict.

One expert did not name specific countries. Rather, the expert suggested the order should follow the priorities under USSOUTHCOM theater engagement plan. The precedence is based on significant U.S. national interest or country need. In fact, two experts responded that the priority should be based on the greatest strategic interest. "Those interests may be related to countries holding informal or formal regional leadership positions, countries having a direct geographical impact on the US, or

countries into which we wish to gain or maintain access for operational training or initiatives."

Other responses include Brazil; Nicaragua and Honduras (due to "large-scale" environmental problems caused by hurricane Mitch and massive deforestation); Haiti (due to deforestation); Guatemala (due to deforestation in Peten and land use contributing to conflict); Ecuador (due to conflict with indigenous people over oil resource). Although one expert also included problems with declining arable land and forests in Chiapas, Mexico, I will not include that in any conclusions because Mexico is not in USSOUTHCOM's area of responsibility.

Lastly, one expert recommended USSOUTHCOM adopt a "train the trainer" within similar regions of Latin America. This expert specifically mentioned Argentina and Chile which "could be brought up to speed on environment, safety and health in the Southern Cone and possibly other countries in Central and South America." This expert cautioned, however, that some problems may exist with this strategy "due to numerous historical border disputes, encroachment and illegal activities in border areas, political instability in certain regions, and existing long-term historical distrust between many countries." To overcome these problems, the expert recommended the military work under the auspices of the Organization of American States "as a peaceful, non-threatening method to increase engagement. It is my impression that the OAS is a terribly under utilized organization and forum and this might be an excellent opportunity for them."

Following the regional "train the trainer" approach, this same expert found it difficult to select one country in the Andean Region "due to past border disputes, internal

political turmoil, and general instability at this time." The expert did mention that "Ecuador has been our long time friend and ally there and possibly cooperation on ESH might be a good way to maintain engagement during a difficult time."

The expert suggested Colombia would not be a good choice as a primary trainer due to (1) the ongoing revolution, and (2) the U.S. approach to fighting drug crops "First, because it would be perceived as dishonest since the US has pushed a major herbicide application campaign that goes against the Colombian Ministry of Environment's desires. (By the way, SOUTHCOM should carry out a risk assessment to determine both short- and long-term environment, health and public affairs issues related to this herbicide campaign. We do not want to get into another agent orange public affairs nightmare ten or twenty years down the road.)"

The expert mentioned that, "before the current anti-US leadership took hold in Venezuela, that country would have been a good one to approach for working with Northern countries in South America." The expert also mentioned that, regarding Brazil, "we need to face [the country] head-on with this issue and focus from both a mil-to-mil approach and why their military should be concerned, and two a civilian government agency cooperative approach. Brazil is concerned with the US pushing these issues, but the dialogue must begin sometime in order to relieve underlying tensions on this topic. Might be better for the CINC to allow an EPA lead on this topic and DOD could attach themselves to an overall government-to-government approach when the time is right."

This expert offered the perspective that "the small countries in the Northeast of South America view environmental security as actual security threats to their borders and not from a regulatory environmental protection viewpoint that tends to exist in the US.

These countries simply need small flat bottom boats to get police and soldiers into the hinterlands to protect from encroachment over their borders and illegal mining and logging. SOUTHCOM should work with coast guard and national guard to establish a boat program similar to some DOD boat programs in Africa."

The expert found it difficult to select one Central American country to lead environmental security training. "Certainly we have ties to Honduras which is one country we should be closely working with on these issues. I think SOUTHCOM needs to weigh the benefits of engaging with each of the Central American countries on an individual basis but do recommend trying to utilize ESH cooperation as an important tool to do this. There are several approaches that could be sought to do this. First, utilize Chile once they are trained up to help with ESH engagement in Central American countries. Also, recommend working with FORSCOM to improve Mexican military ESH standards and begin to utilize them in Central America as well. Finally, work with the EPA, FBI, and other US police organizations to develop EPA-to-MOE/national police-to-police engagement in Costa Rica and Panama. Once these latter relationships are developed, this concept could be furthered in other countries further strengthening civilian authority over these issues."

Lastly, "In the Caribbean, we should leverage from already established ESH cooperative activities with UK and other countries that have interest in the region to develop multi-lateral engagement activities on ESH."

1. The ones where legitimate, friendly military forces need to develop better citizen support in order to solve other problems, such as Columbia and El Salvador. US environmental security involvement can pay dividends in several directions at once.
2. The ones that have large problems in quantity or size: Argentina, Brazil, Chile, and Mexico. Problems are so massive that major help is needed.

3. The ones where scale factors are too small to permit national militaries to possess the necessary internal expertise to design and start their own environmental management programs – counterparts to US Services' programs: Central America and Caribbean Islands. A little consulting help will go a long way.
4. Others, as resources permit.

ROUND 2 COMMENTS

Only four experts commented on round one responses for question 3. The first expert suggested a format improvement to summarize the responses, and also mentioned that, although Columbia is a popular response, it may be the most difficult country to engage with given its drug war record and role in the environment.

The second expert suggested USSOUTHCOM choose engagement activities based on a blend of ease of accomplishment, likelihood of success, and national security interests:

1. The first engagements should be fairly easy; that is, pick some low-hanging fruit, but treat them (or parts) explicitly as environmental actions: e.g., continue such things as Mitch response, El Salvador war amelioration (environmental aspects) and de-mining related work in Central America.
2. Deliberately select projects in key countries where preventive action still has likelihood for success and significant US security values. For example: … Chile has difficult challenges of high pollution concentrations and remote resources being harmfully exploited; Brazil could do so much damage on its lands that it could bring several neighbors down with it in coming decades. In nations where the military wields disproportionate power, US military models could have disproportionate spill over onto civilian sector environmental management.

This expert also suggested I provide a list of countries matrixed with their environmental issues and ask the experts to score those issues based on environmental security criticality, military fit, and the likelihood of success. This method would enable a more statistical response.

> Interesting variety of responses. It points out that there are a lot of problems out there that need to be addressed. I think there are a couple of correct answers: first, those that have the greatest strategic interest and are

high on the CINC's priority list and second, those that are willing to work with us. Not always congruent.

*The Brazilians really resent "gringo interference"!!!

*In Haiti, deforestation is not the root cause of social and economic

problems - the opposite is true!

ROUND 3 COMMENTS

One expert responded directly to question 3 in round 3. The expert concurred that Brazilians resented "gringo influence" but pointed out that the rest of the countries do as well.

QUESTION 4: Which environmental protocol (air, water, solid waste, etc) should be addressed first?

RESPONSES

Seven experts responded to this question. Four experts specifically mentioned water or water quality as the protocol to address first. One expert stated that many countries are just beginning to develop wastewater treatment plants and related facilities. One expert also included air quality as equal priority. One expert disagreed with these priorities stating "air pollution is limited to major urban areas in Latin America and water distribution per capita is actually one of the highest of any part of the world."

One expert also cited reforestation as the highest priority. "Many sections of Central America and the Andes are probably reaching a critical threshold with respect to deforestation and soil erosion."

Instead of citing one specific protocol to top the list, one expert offered a tiered approach to decision makers.

> First, environmental security is more than environmental protection, it is environment, safety and health. Thus, the highest priorities should be placed on those regulatory areas (both domestic and international) that serve the US military by enhancing our own force health protection, and improve interoperability in multi-national operations, and improving access to air, land, and water. Within the overall priority scheme, up front ESH planning for all military operations, from installation management to off-installation military operations should be high on the list. Also, would recommend hazardous material handling, hazardous waste, medical waste, water management, force health protection, explosives safety, aviation safety, safety in weapons systems operation, etc. be in the first tier of priorities. Second tier might include air, solid waste, industrial and workplace safety and occupational health, and other environment, safety and health issues. Recommend the SOUTHCOM ESH communities be brought together to work out the priorities with force health protection, interoperability, and access to air, land, and water being the guiding principles.

One expert suggested the priorities are "fully dependent upon the needs of the country. It is irresponsible of the US, or any other country, to believe we know what is best for another country." Instead, the prioritized list should be a cooperative effort to match USSOUTHCOM capabilities with the country's needs.

One expert stated, "this list omits some of the major reasons for conflict that should be part of the purview of SOUTHCOM and elaborated in official US policy." The two major reasons the expert mentioned are (1) conflict over specific resources (such as oil or diamonds) and (2) conflict over general resources (such as forests or water).

The last expert said,

> 1. This is less an either/or issue than a "what to do in a given nation" issue. First, environmental management institutions need to be incubated and nurtured to help national militaries do a better environmental job and to help their own societies.
>
> 2. Water and hazardous waste (management) are two areas in need of special attention. Needs are so great that anything accomplished will be worthwhile. The US Services have considerable knowledge and technical capability in both areas. The expertise resides in active personnel and Reserve and National Guard personnel (whether from their MOSs or in civilian careers).

3. Water supply and sanitation seem poised for global attention by the UN and many NGOs. SOUTHCOM could be a major contributor to quality of life (ergo, stability) improvements without having to take on the baggage of the coordinating leadership role.

4. US forces have considerable experience in establishing and running hazardous waste management programs and clean-up programs. They have science, engineering and management expertise and laboratories. Many forms of physical and biological surveillance and analysis products can be used for most of the [Left unfinished by expert]

ROUND 2 COMMENTS

Four experts also responded to round one comments for question 4. The first expert suggested a vocabulary change—"media" instead of "protocol"—for clarification purposes. This expert also surmised that, based on a review of the responses, it doesn't seem to matter which environmental area (media) is most important.

The second expert had three specifically suggested areas for engagement based on

> "consideration for national/local needs and the ways US military can be most responsive without harming its own readiness. These are the three fields I think hold the most promise for early successes and longterm value, in that the results can be immediately beneficial, prevent long term harm and fit the US military bag of tools."

1. Water is a field in which a wide variety of engineering and preventive health resources have capability and need training opportunities. Contrary to the implied message of one of the responses, water adequacy and quality for consumption and sanitation are serious problems that can be used to help bring military and civilian organizations together to improve lives and social stability. There may be, in the near future, a major global effort in this regard that USSOUTHCOM could join. I can't get more specific, but wheels seem to be slowly grinding into motion.

2. Hazardous substances (beneficial uses) and wastes are fields for which US military resources have considerable expertise that could be tapped by USSOUTHCOM.

3. Aforestation (opposite to deforestation) is a field of considerable importance to some Central American nations, and the US military civilian force has a lot of expertise.

The third expert stated that “lack of wastewater treatment is probably the biggest environmental health issue in the region. It is also one of the easiest technically to resolve. I understand the other issues raised about air pollution as well as the comment about the needs of the individual country. From a strategic perspective water supply and wastewater treatment are probably the right answers. We can address other issues concurrently, such as hazwaste and air pollution, but water issues have the most immediate impact.”

The fourth expert felt that each response was true for some areas, but reforestation was at the top of the list because it solves many problems at once. “But would USAID be better suited to working with this issue? Not having served in the military, I can't really say.....”

ROUND 3 COMMENTS

One expert responded directly to question 4 in round 3. The expert pointed out the new Administration’s desire to shape and influence as part of a preventive defense effort could include SOUTHCOM’s partnering with other U.S. government organizations on efforts such as reforestation.

QUESTION 5: Given the unique capabilities and talents of the U.S. military, what do you think the most important aspects of USSOUTHCOM's strategy should be regarding environmental security?

RESPONSES

Seven experts responded to this question. Four experts agreed on the same response to this question—education and training. “The military teaches and trains. This is a

valuable commodity to them and to those who need these services. Being proactive is preferred, but in some ways more difficult in up-front costs than being reactive." One of these experts also included joint research and development in the list.

The other experts included integration, marketing, coordinating efforts with other CINCs, leadership, military to military relationships, building an environmental database, and non-threatening activities in their answers.

ROUND 2 COMMENTS

Five experts commented on round one responses for question 5. The first expert emphasized the importance of training, suggesting this is the best military asset to provide and also the greatest need for Latin American countries.

The second expert also listed training, but included many other engagement activities as well.

> Evaluation (joint with other nations) of ES gaps suitable for military participation.
>
> Determining which skills & equipment can be shared within readiness requirements.
>
> Determining with intelligence organizations which nations will profit from ES help….
>
> Negotiate non-threatening relationships.
>
> Project activities should seek to –
>
> > Train the trainer (executive on down) in mitigating/preventing environmental damage
> >
> > Role model corporate good citizen behavior by military forces
> >
> > Establish/strengthen national military environmental management programs of their own
> >
> > Establish strong GIS and similar data management for the environment

Initiate/strengthen rural and urban water supply programs

Strengthen hazardous material/and waste programs.

Strengthen aforestation programs

Strengthen democratization by the foregoing

The third expert did not list activities. Rather, the expert proposed a strategy of how to select, and then proceed with, the activities.

> "The strategy shouldn't be a generic, one size fits all approach. It should look at the level of engagement already in place, the need to expand that engagement (strategic access, the ability of the country to participate as a coalition partner both in the region and internationally, and developing goodwill), and the conditions of the country's environmental security program. Based on the responses to these questions, USSOUTHCOM should then shape an appropriate response using a crawl, walk, run approach, i.e., start with foundational exploratory meetings and information exchanges, move through expert exchanges and then on to cooperative research and development with the final step being evolving into a regional or international multilateral program."

The fourth expert believed the relationships developed with the leadership of most Latin American countries were the most important aspect of USSOUTHCOM's strategy. Building on these relationships will have the greatest effect.

The fifth expert agreed with respondent #2 that the most important aspect of USSOUTHCOM's strategy should be to strengthen military-to-military relationships. Additionally,

> In many countries, the military controls or produces all other geographic resources, such as maps, air photos, satellite images, many environmental resource books, etc. The military, therefore, is often the best organization within the Latin countries to empower other groups such as NGOs, who have more of the scientific expertise necessary to solve the problems. And I'll reiterate my response from "round1:" top military officers should empower those who would like to create an environmental data base. In Ecuador, I can certainly say, if the top military officers mandate changes, they happen!

ROUND 3 COMMENTS

One expert responded directly to question 5 in round 3. The expert agreed with the training and skills comments made in earlier rounds by other experts, as well as the "crawl, walk, …" approach.

QUESTION 6: What do you think are the three top projects USSOUTHCOM should work on?

RESPONSES

The responses in this section could not be summarized and are, therefore, taken verbatim from the expert responses.

1. Integrate ESH into all SOUTHCOM mission areas and at all levels: strategic, operational, and tactical.
2. Establish policy to focus ESH engagement efforts on force health protection, interoperability, and access to air, land, and sea.
3. Continue to establish State Partnership Program as rapidly as possible and throughout the region. And, ensure National Guard includes safety and health along with their environmental mission in this area. In many ways, the SPP is the perfect program to help push environmental security throughout the region. (as a side thought, has there been any consideration of making the state guards assigned to a given country the de facto executive agent for mil-to-mil and mil-to-civ engagement for that country?)

1. Promote renewable energy
2. Change our image through deeds
3. Reexamine the drug war

1. Environmental awareness in the militaries in the AOR
2. Environmental issues discovered by the J-2 where SC military expertise could have a positive impact.
3. Using our military engineering assets, (Corps of Engineers, NAVFAC, AFCES, etc.,) look for areas where our technical assistance could be leveraged to resolve potential ES conflicts.

1. Thousands of refugees are now invading NE Ecuador from the Putumayo province of Colombia. Steps should be taken immediately to ensure that these people are resettled with as little environmental impact as possible.
2. Contain the "Coca deforestation" in SE Colombia (but I'm not sure how!). This area is well known for its biodiversity, and supports approximately 500,000

people. Coca deforestation has proven to be devastating in Peru, and undoubtedly the impacts in Colombia will be far worse.
3. Help countries develop long-term plans for ameliorating water quality.

1. Develop basic information system for tracking environmental issues and security in USSOUTHCOMM. Work with other "COMMS" in this regard. This could incorporate efforts underway at the Center for Army Analysis.
2. Work on developing expert systems to help in decision-making and implementation.
3. Develop some pilot projects and attempt to measure success.

1. Low-key, long-term technical assistance in conjunction with other types of groups would be sensitive, but achievable from a political standpoint. There would be some exceptions, i.e., Colombia, but feasible in most places.

[No other projects were listed by this expert]

1. Formulating and conducting programs for water conservation and wastewater treatment for national military facilities to build an aura of success on a topic that will also be of direct benefit to their personnel. Then expand to support of national water authority and ministry of health water programs.
2. Establish tight management procedures and methods for military hazardous wastes, other than explosives. Help make national forces role models within their respective countries.
3. Surveying their other nation counterparts for their ideas – perhaps via the American Army Commanders' Conference or similar mechanism. This is needed to avoid excessive paternalism. Items 1. and 2. could be suggested and would probably be high on other nations' lists, anyway.

ROUND 2 COMMENTS

Five experts commented on responses for this question. The first expert summarized the responses from round one:

1. Something on Colombia
2. Inventory of assets
3. Tracing of trends and events.

The second expert did not have enough knowledge to list top projects, but agreed with the general comment: "First, environmental awareness in the militaries in the AOR. Second, environmental issues discovered by the J-2 where SC military expertise could have a positive impact. Third, using our military engineering assets, (Corps of Engineers, NAVFAC, AFCES, etc.,) look for areas where our technical assistance could be

leveraged to resolve potential ES conflicts." The expert suggested the process "needs an interactive consultation between geographers, environmentalists and environmental health experts."

The third expert also recommended against a generic approach. Rather, the priorities should be based on what the countries deem important and the U.S. prioritization of specific countries based on national interests.

The fourth expert responded, "Quite a diversity of opinion! Using the crawl, then walk philosophy, the first thing we must do is develop relationships internally (US) and externally (NGOs and other countries) then proceed from there. I am not aware of any significant issue where SOUTHCOM could unilaterally step in and attempt to solve any environmental problem – without causing many more problems." The fifth expert said all answers were fine.

ROUND 3 COMMENTS

One expert responded directly to question 6 in round 3. The expert agreed the U.S. should do something in Columbia, as long as it's anything but what the nation is currently doing.

QUESTION 7: How do you think the governments and peoples of the Latin American countries will react to the strategy and projects described above?

RESPONSES

Six experts responded to this question. The responses to this question ranged from skeptical and negative, to positive. Two experts stated that most governments would be skeptical. One of these experts said, "They [the governments] will likely believe that we

are patronizing them or seeking influence. However, I doubt we will develop the political vision and integrity to effectively facilitate the kinds of strategies outlined by the other respondents to your question except for mil to mil environmental security initiatives - which are good things to do but are a small piece of the environmental security pie for the southcom aor." The other expert mentioned that "each government will respond differently, and the individual responses will be highly unpredictable. Most, I imagine, will be somewhat skeptical."

Four experts stated they believed the reaction would be positive, particularly if we take the "helping" approach vice the "we know best" or "pre-determined gringo programs" angle of forcing ourselves on the country involved. One of these experts also said some countries have already reacted positively, indicating if we simply inform the countries of USSOUTHCOM's capabilities and let them come to the command when they are ready, the reaction will be better. One of these experts mentioned that "particular sensitivities exist in the Southern Cone countries where we appear threatening (Brazil)."

ROUND 2 COMMENTS

Four experts responded to round one comments for question 7. The experts emphasized that the reaction will be sensitive and the engagement activities should be begun with measured steps. Hence the need for partnering with the countries' militaries. "In some places it will be with a sense of relief that more work is being done. The offers have to be gently made. Initial projects have to be easily accepted and of high success probability. Not even major planning should be attempted until some partner nations are

on board with the idea. Anything that seems to be a secret before bursting forth will raise destructive resistance. Start easy somewhere and let others ask to be included."

ROUND 3 COMMENTS

One expert responded directly to question 7 in round 3. "A slow and steady approach is appropriate, we should take tangible steps to replace our 'gringo' footprint with a more 'we share the hemisphere together' footprint."

QUESTION 8: Once the priorities and strategy are established, how would you recommend measuring the progress of USSOUTHCOM in their environmental security efforts?

RESPONSES

This question elicited many good responses among the seven experts, but no consensus among the experts. Therefore, the responses are shown here verbatim.

> **Response:** Through a combination of measures of effectiveness, such as access to safe water, deforestation rates/levels, infant mortality, renewable energy displacement..... Also, the quality of the partnerships (governments, ngo, development banks, private sector ....) established to promote quality of life and stability in the aor.
>
> **Response:** There are several ways.
>
> 1. All ESH engagement activities should be tracked on a central database. This database should get into enough detail that it identifies environment, safety and health related engagement that may be embedded in a larger training exercise or engagement activity.
> 2. Develop a policy for environmental security engagement.
> 3. Integrate ESH concepts into all engagement activities. Importantly, this should be shared with the Services to help get this into overall Service policy at Pentagon.
> 4. Provide appropriate trip reports, information papers, conference/workshop proceedings, etc. up chain of command.
> 5. Develop environment, safety and health protocols for each country that can be used by our own forces in deployment situations, as well as by the individual country militaries to establish their own programs. It is important to note that

many of the Latin American countries have developed extensive environment, safety and health-related regulations. Our forces need to be aware of them on deployments. Maintenance and updates on these protocols could be under the authority of the State Guards assigned to a given country.

6. Monitor individual militaries implementation of their own environment, safety and health laws into military policy and regulations.

Response: They say that imitation is the sincerest form of flattery. I would look for "imitators" of US military environmental programs and call them successes. We should develop goals and objectives prior to starting any significant new effort just for this purpose.

Response: I have no answer to this question at this time. My research often concerns the evaluation of environmental policy, but I still have more questions than answers.

Response: Simple measures of merit don't easily apply to international environmental cooperation. At the onset of the cooperation the US needs to unilaterally and cooperatively develop objectives for the engagement and then annually review those objectives to determine attainment. The unilateral objectives, sometimes referred to as the "quid," may be as simple as staying engaged or as complex as maintaining access at particular training ranges to enable joint training and interoperability or exchanging key R&D data.

Response: As part of the database and pilot projects, a system could be put in place. These should focus on environmental indicators (and their social and economic relation) and indicators for conflict or security.

Response: That's tough. One might try to determine to what extent a national military force moves from being an environmental problem to neutrality to being part of the national solution.

One could use reporting and statistics to assess the amount of ES work that a national force starts to do voluntarily up to and beyond US stimulation and involvement.

One could assess the degree to which non-military agencies seek alliance with the national militaries on ES projects or give approbation to their ES work.

ROUND 2 COMMENTS

Four experts had comments on round one responses for question 8. The first said that the means of measuring "should be part of a larger system of tracking, evaluating, and other tools for decision making."

The second expert had three suggestions and a caution:

- The rate and depth of new requests, especially those with significant host nation counterpart resourcing.
- Look for "imitators" of US military environmental programs and call them successes.
- Intelligence analyses of changing social, health and environmental conditions.

The expert cautioned to "beware of anyone demanding to know what conflict or social disruption has been prevented. Rarely can we know what would have been in an alternate future."

The third expert found it difficult to establish a measurement system. "Environmental Security is kind of a negative thing. If you do a good job, nothing happens! I think you can measure failure easier than success. Conflicts over resources, pollution, or other environmental issue denotes a failure. Harmony indicates success!"

The fourth expert did not have a specific answer, but suggested the military follow USAID's lead to evaluate its programs. "I still have no intelligent response to this question. One key point, tho, is that the amount of time required to measure the success of a given program will vary widely among regions and projects. I believe that the military will have to hire a large group of high-powered environmental consultants to help with the evaluation phase. This is certainly the strategy that USAID has adopted."

ROUND 3 COMMENTS

One expert responded directly to question 8 in round 3 and suggested that an increased use of analysis is timely.

Lastly, one expert responded to the additional question. The expert stated, "Through increased partnering with other governmental organizations (US and regional) and NGO, we can better leverage SOUTHCOM's scarce resources to respond (and prevent) environmental disasters. Also, reprogram the counterdrug money to environmental

security, it would make environmental disaster response evaluation a less constrained process and better serve US and regional security objectives."

Glossary

AOR	area of responsibility
DSS	decision support system
DoD	Department of Defense
DoS	Department of State
EIA	environmental impact assessment
ES	environmental security
ESH	environment, safety, and health
FARC	Revolutionary Armed Forces of Columbia
FTAA	Free Trade Agreement of the Americas
GN	Global North
GS	Global South
IGO	international governmental organization
IO	international organization
IOC	International Organized Crime
IOP	instruments of power
MEA	multilateral environmental agreement
MOOTW	military operations other than war
MTW	major theater war
NCA	National Command Authority
NGO	Non-governmental Organization
NMS	National Military Strategy
NSS	National Security Strategy
OAS	Organization of American States
PVO	Private Voluntary Organization
QOL	Quality of Life
TED	Trade Environmental Database
USCINCSO	Commander-in-Chief, United States Southern Command
USAID	United States Agency for International Development
USSOUTHCOM	United States Southern Command
WMD	weapons of mass destruction
WTO	World Trade Organization

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